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Physical Therapy After Surgical Metal Fixation

M. John Rowe, M.D., and
Gladdes B. Neff, B.S., R.P.T.T.

Recent trends in orthopedic surgery have been toward metal fixation, stabilization and substitution. This has been facilitated by the development of metals and technics which have been well tolerated by the human organism.

Prolonged cast fixation, external immobilization, has been necessary when complete healing of bone to bone or tendon to bone has been required before function could be resumed. This fixation often necessitated extensive therapy for the correction of atrophy, weakness and joint adhesions which were secondary to the fixation and not necessarily to the surgical procedure. When internal metal fixation or substitution is used successfully there may be no need for such cast fixation. Muscle and joint function may be maintained by early use and exercise in the convalescent period.

Physical therapy consequently may be simplified by the earlier institution of treatment and by the absence of secondary complications for treatment. The need for skill and teaching ability is increased since muscle training and active motion are the prime aims of this treatment.

Almost all modalities except local short wave and diathermy may be employed. However, intensive muscle education, following soothing, gentle massage, has been found most effective in obtaining early active, efficient function.

Inasmuch as physical therapy may begin as soon as the operative wound is healed, the therapist must have a thorough understanding of the operation and must proceed cautiously and skillfully. Muscle tone may be maintained by means of static or muscle setting exercises even before joint range may be instituted. Muscle and joint nutrition and elimination being directly related to active motion[1], assistive active motion should be carried out for joints adjacent to the area involved. For example, if the operation has been performed at or near the knee joint, passive range and assistive exercises will be begun at the foot and the hip. At this time the physical therapist begins training the patient in relaxation and coordination. The patient is asked to concentrate on the indicated positions of the muscles to be exercised, relaxing all other parts of the body.

As a rule, when physical therapy begins early it is not difficult to teach the patient setting exercises for the muscles in the actual area of the operation. Some few, however, who may have poor muscle sense, might be given the "feel" of the muscle pull by the very cautious and judicious use of the sine wave. At this time a surge strong enough to cause actual joint motion should be avoided because of the danger of loosening a muscle attachment.

Following muscle setting exercises, active assistive exercises should be instituted. Motion is not forced by use of passive range. The patient

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Fig. 1. Lateral transposition of anterior tibial tendon with nail.

is given assistance in gaining a few degrees of range by actively contracting muscles indicated by the physical therapist. Usually a position in which gravity is eliminated is helpful at first. Motion in every direction that is normal for the particular part involved is attempted. However, the therapist must be sure at all times that the part will return to its original position of proper alignment. If ten degrees of flexion are accomplished then ten degrees of extension must follow.

Assistive active exercise is continued until the joint has gained its maximum range. After this, free range against gravity will be given and finally resistive exercises.

Fig. 2. Replacement of patellar tendon and tibial tubercle after approach to knee for partial synovectomy.

In many instances use of the warm pool as a medium in which to obtain this program of muscle education is very helpful. The constant warmth plus the effect of buoyancy gives the apprehensive patient a feeling of comfort and security. Thus confidence in being able to move without discomfort is built up rapidly, assuring active patient cooperation. It is felt, too, that the pressure of the water on the part tends to aid in simulating the resistance of the normal fascial sheaths and to increase the rapidity of circulatory interchange[1]. Buoyancy may be used either as an assistive or resistive force.

When a therapeutic pool is available, weight bearing may be instituted almost as soon as the

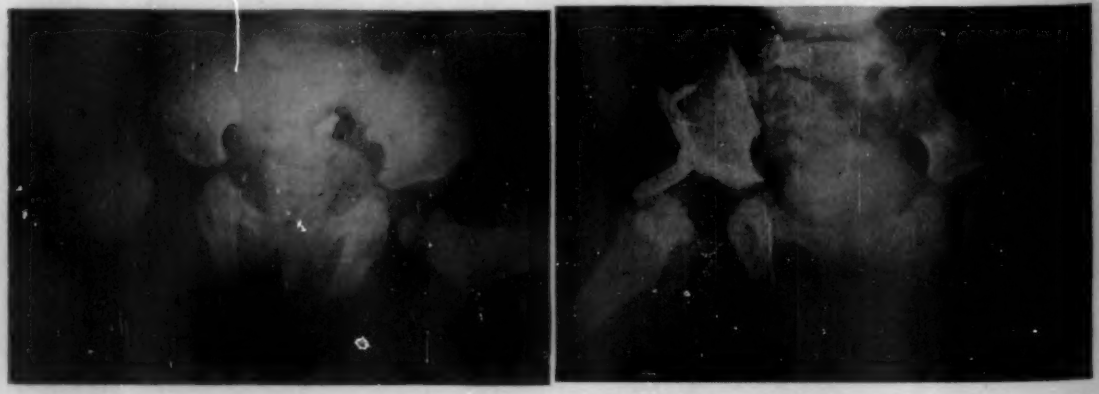

Fig. 3. Dislocated hip following septic arthritis and loss of capital epiphysis in infancy. Before and after application of metal shelf.

wound is healed. Since buoyancy of the water will eliminate approximately two-thirds of the body weight of a patient submerged to shoulder depth[2], the weight bearing joints and muscles may be trained safely to resume their normal functions, at the same time gaining improved circulation.

If, as is sometimes the case with severely paralyzed patients, crutches are needed for added support, their tips may be weighted with lead to make them practical for use in the water.

During this program of education for muscles of the operative area, training in good posture habits must not be neglected. Realizing that the ultimate aim of the operation has been to achieve more nearly normal function, the therapist must teach the patient how to manage a well coordinated body and not limit efforts entirely to the locale of the operation.

Psychologically, patients cooperate well in their training program with the stimulus of early function and the absence of need for prolonged immobilization.

The types of surgical operation may be divided into three major groups: tendon transplantation, joint reconstruction and joint stabilization. The simplest example of tendon transplantation is that of lateral transposition of the anterior tibial tendon to the mid foot for correction of persistent varus. Metal nail fixation of the tendon[3] obviates the need for cast during the period of healing because of the positive internal fixation which takes its place. Muscle education may be started as soon as the operative wound is healed. This definitely shortens the time of disability (Fig. 1).

This same type of procedure and a similar rationale of treatment is used in fracture or transplantation of the medial epicondyle of the humerus when fixation is by metal nail. Approach to the hip, knee (Fig. 2) or ankle by section through the trochanter, tibial tubercle or malleolus can be facilitated when the bone is fastened back with metal so that fixation is immediate and firm, allowing early therapy.

Joint reconstruction may be definitely improved when early therapy can be given. For example, in the treatment of the dislocated hip the use of a metal shelf[4] to supplement the inadequate acetabular roof often may allow early function without the need for cast and decrease the incidence of ankylosis following shelf operations (Fig. 3). Incidentally the approach to the hip for open reduction or reconstruction can be facilitated by removal of the bone attachments of the major muscles and replacement with metal fixatives rather than section of the muscles and ligaments themselves[5]. Such approach allows earlier motion and function without prolonged immobilization of the joint.

Fig. 4. Metal block elevation of tibial plateau to correct genu recurvatum.

Another phase of joint reconstruction is that of metal replacement when the bone structure is inadequate. This might be compared somewhat to the inlay dental filling and has been used first in the covering of skull defects but more recently in the elevation of the anterior tibial articular surface at the knee to correct genu recurvatum[6] (Fig. 4). In this instance the metal wedge gives stability so that early motion can be instituted to retain any muscle function present and to prevent ankylosis of the joint. Also the secondary compression noted with bone grafts is not found.

CONCLUSION

Internal fixation can be used successfully in tendon and joint surgery. Its use may decrease the period of disability and shorten the period of physical therapy necessary to obtain greatest function. Such physical therapy requires the maximum of intensive and efficient muscle education.

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An Emergency Physical Therapy Unit

The Emergency Physical Therapy Unit developed by the 21st General Hospital, overseas, emerged as the result of efforts to cope with the problems presented during the early days of the establishment of this hospital in Italy. It was necessary that equipment be assembled in such a way that it could be readily accessible with a minimum of unpacking and could be returned to a locked compartment in order to obviate the necessity of guarding.

In one box—27 inches x 33 inches x 62 inches, and weighing (when packed) 475 pounds—was packed a unit capable of treating from 50 to 75 patients per day, with no other facilities. This box contained standard sized compact folding plinths and bedside tables, and a small generator capable of producing sufficient current for the infra-red lamp. In addition, it contained the following:

1 Wash Basin
1 Tablet (lined)
1 Memo Pad (plain)
2 Pencils
1 Ruler
1 Index Card Set
200 Cards
200 Request Slips
1 Pkg. 4x4 Dressings
1 Pr. Dressing Forceps
8 Blankets
2 Pillows
1 Hand Scrub Brush
2 G.I. Scrub Brushes
1 Can Olive Oil
1 Infra-red Lamp
1 Box Thumb Tacks
2 Physical Therapy Signs
1 Stool
2 Pr. Bandage Scissors
1 Dressing Jar (filled)
6 Rolls Adhesive Tape
1 Roll Cotton
1 Doz. Roller Bandages
6 Ace Bandages
200 Paper Cups
1 Pkg. Paper Towels
1 Bundle Newspapers
3 300 W. Bulbs
3 60 W. Bulbs
2 Extra Sockets
1 Infra-red Element
1 Extension Cord
25 Hand Towels
25 Bath Towels
12 Sheets
6 Pillow Cases
2 Dozen Candles
1 No. 10 Can filled with Paraffin
2 Paint Brushes
1 Can Scouring Powder
2 Bars Sand Soap
3 Bars G.I. Laundry Soap
4 Bars Hand Soap
2 Mop-heads
1 Double-burner Coleman Stove
2 Buckets
1 Hammer
1 Saw
1 Pr. Pliers
1 Screw Driver

When packed, the stool was used to brace the generator. After unpacking, the generator box was used as a chair to accommodate patients with arm injuries, and the packing crate served as a desk and storage space.

For emergency physical therapy treatments in hospitals in forward areas or "on the move," it was the opinion of those who have used this method that it may prove to be of practical value in any overseas outfit.

Extraneous Movements in Cerebral Palsy

Berneice R. Rutherford, M.S.

The ability to meet situations adequately depends upon the adjustability of the individual. Adjustability suggests the need for objectifying thoughts and actions. Recognition of the need for objectification is growing in various fields involving the management of human beings. Its application to behavior problems and to habit patterns in general is not new. More recent is the application to problems in speech pathology, [1, 2, 3] and still more recent to the extraneous movements of children handicapped by cerebral palsy, [3, 4] particularly those indicating the athetoid condition. It is toward this latter problem that this paper is directed.

As study on this problem of extraneous movements progresses, there is more evidence that these movements are a series of overlaid habit patterns. These patterns may have been built up over a period of years. Considering them from the first simple frustrated movement, through the complicated maze of writhing movements, they seem to fall into two classes, primary and secondary.[5]

Primary movements are first in order of appearance. They probably are due to the lesion causing the cerebral palsy condition. They need not be confused with the random movements of an infant but may well stem from the same impulse which induces these random movements—namely, the desire to move. The primary movement, however, is for a definite purpose, such as to reach for an object, to kick against something or to cry loudly. Interference within the nervous system misdirects impulses which in turn produces frustration. According to Carlson,[6] extraneous movements are absent during the period the individual with the athetoid condition is under the influence of ether anesthetic or alcohol. The author has observed their absence in these children during sleep.

Frustration in accomplishing certain acts results in the individual not trying again at all, trying again in the same way or trying again in a different way. If the urge is sufficiently strong, another effort probably will be made in the same way at first. Repeated frustration, however, is apt to result in either forcing the old movement to produce, or in abandonment of the old way of doing in favor of another way. For example, Bob had found that his speech block sometimes seemed to be released if he shook his head slightly to the left. For a time this movement carried him along to his satisfaction. Then it began to be of less and less value. So he tried to force it by tossing his head violently up and back over the left shoulder. Almost simultaneously he used a vocalization in the nature of a hum. Later this movement was used without reference to oral speech. It had become a habit pattern, not used in its original capacity, not even with reference to its original intention.

Secondary movements develop, one after another, when the primary movement does not accomplish the desired purpose. Secondary movements appear to a casual observer as purposeless, and they may be. Originally they may have been experimental and exploratory or for a definite purpose. Perhaps they were successful, temporarily. When the desired result was not accomplished, each lost its value so another movement was tried. Pattern after pattern may be overlaid in this undirected search for control.

The elimination or reduction of these extraneous movements is of considerable importance to children handicapped by the cerebral palsy condition, particularly the athetoid type. It is important physically for comfort and for greater ease in manipulation of the body, whether for speech or other activities. It is important psychologically for it is a means of allowing these children to develop poise, making them less obvious and more at ease in their social groups. It is important esthetically because of the reaction these extraneous movements produce in other people and the subsequent effect on the child himself.

Results of fifteen years' study and application of a definite procedure developed with children

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who are handicapped by the cerebral palsy condition indicate that many, perhaps most, of these extraneous secondary movements can be reduced or eliminated. Furthermore, it seems probable that the primary movements also may be controlled or modified.

Several facts stand out as these children are observed. Many of these movements are so consistent in their appearance that they can be seen over and over again. This fact gives rise to the belief that they are largely habit patterns. If they are habit patterns they can be modified. Such a conviction concurs with the more modern trend in the thinking relative to "athetoids," namely, that (1) this observable, disturbed motion is evidence of an interference with the normal flow of impulses, but this interference is probably subcortical in origin, and (2) voluntary movements are possible but often are ineffective because of the uncontrollable involuntary movements.*

Another phase of the question of control of extraneous movements arises with the recognition of them as habit patterns. That is the prevention of their formation. I have seen secondary movements in these children who are less than three years of age. It is reasonable to suppose that they develop at an even earlier age. Certainly some habit patterns are developed in the first months of life. Fortunately, perhaps, many of these children develop movement rather slowly. They might be reached before too many undesirable patterns become established. Unfortunately, however, the children are not brought for treatment young enough, or these movements are not recognized as habit patterns and treated accordingly. Prevention of these habit patterns needs serious consideration. It necessitates more widespread education so that families into which these children are born can be reached and guided.

We are assuming in this paper that anyone who attempts to alter these habit patterns has an understanding of habit pattern formation, of body musculature, relaxation, principles of speech hygiene and of mental health.

Before the child begins work on specific movements he should know something about the formation, use and value of habit patterns. Acquaintance with habit patterns in general should point the way to an understanding of the relationship of his movements to habit patterns. To know that his movements may be controlled and changed gives a child a feeling of relief, helps him build self-confidence and aids him in becoming objective. He should know that many of these movements need not be permanent; that they are not the individual but are largely a superimposed condition, one which he, himself, can alter. If he learns to become truly objective he can accept, without emotional tone, the knowledge that some of the movements may remain. It is obvious that this latter information should not be thrust at him during his introduction and early study of himself. Certainly he should realize to the fullest of his ability that his movements need be crippling only to the extent to which he allows them to be. Under stress of excitement, haste, desire to "make an impression," these movements tend to increase in intensity and frequency. Intensity and frequency gradually are reduced as the objective study proceeds. A girl of thirteen rather naively summed up the situation when she said, "Why, I'm not *self*-conscious. I'm *people* conscious. I need to sit outside myself to see what they see."

Specifically the steps used in reducing or eliminating these habit patterns present in extraneous movements are: identification, recognition, attack of purpose, analysis, imitation and application.**

(1) Identification — Identification of each movement is the basis for successive steps. The individual must know the movement upon which he is to work if he is to modify or eliminate that movement. He works before the mirror observing what happens when he speaks. This is the "what" step. Identification may be voiced by such simple statements as: "My eyebrow went up" or "My head jerked back." Verbal identification assists in the development of an objective attitude. Each movement is usually identified by a descriptive name such as "nose wrinkle," "neck thrust." If the child supplies the descriptive name it is apt to be more meaningful. Some movements are observed to be made up of a series of movements. All the movements of a related series may be observed at once, or the individual movements may be seen as unrelated movements. Either observation is temporarily acceptable. It is interesting to note the diversity of reactions to the initial efforts at identifying. One child said, "Isn't it silly?" He seemed to enjoy a good laugh as he continued to look at his actions which

*Reported to the author by Dr. John F. Pohl, consulting orthopedic surgeon at Dowling School.

**The steps used in this therapeutic method with children handicapped by cerebral palsy are modifications of the management of stuttering speech which has been comprehensively written up by C. W. Van Riper in "Principles and Methods of Speech Correction." Though there may be no similarity in the neurological or physiological basis for stuttering and cerebral palsy there seems to be considerable similarity in the psychological aspects. Hence, the neatness of applying the modified management.

accompanied the attempt to speak. Another child looked, saw, and grunted out a little embarrassed laugh, looked away, frowned slightly and then returned his glance to the mirror. This reaction continued for several days. Then he began to talk about what he saw happening. Individuals vary, of course, in ability to discern movement and in the ease with which they are able to watch themselves. One child's attitude of embarrassment continued for several weeks if someone sat with him during the study period. When left to his own efforts he seemed to be less embarrassed and was able to study more diligently. When he discovered a movement he called the therapist to come to him.

The first few observations of his grotesque movements can be a shock to a child. To prevent such a reaction the therapist sits with him on each observation period until he is able to look at his movements impersonally.

The child's observations should be guided by definite directive assignments such as "Talk about your pet dog. Watch your right arm as you talk." "Tell what you liked best at the Ice Follies. Look at your forehead, and tell me what you see."

The length of the identification period depends upon the individual. The child should not be hurried. He should be led to see that many of his movements are extraneous and unnecessary, and that many of them are exceedingly funny. These directed observations should show the child how to make observations unassisted. As movements are discovered they should be recorded. Such a record serves as a guide for further study and as a starting point in charting progress. Immediate recording is advised because some of these habit patterns may disappear as soon as they are identified. Repeated discussions on formation and elimination of habit patterns should accompany this step, for repetition aids in the understanding of the theory and the practice involved. A thoughtful child will find these patterns as he studies by himself if he understands the procedure.

(2) Recognition—Recognition of a movement frequently begins immediately following identification. As the child is watching he sees a certain movement a second time. If he has named it he will probably indicate its return by that name. However, identification of a movement does not insure recognition of it upon successive appearances.

Recognition of the identified habit patterns wherever and whenever they occur is essential. As far as it is possible none must "get by" without the child being aware of it. At first verbal acknowledgment of the recognition should be made, such as, "There's my head jerk," or "My nose wrinkled again." Each child should understand the importance of recognizing every appearance of his identified habit patterns. He should be led to see that these movements are habit patterns, probably unnecessary, and also that they are modifiable. There are many devices that have helped in increasing the awareness or the recognition of movement—tapping a bell, raising a finger, winking an eye, making a specified sound, are a few. Usually, as in our experience at Dowling, the child soon recognizes how funny the movements look. Just occasionally has it been difficult to break through the protective shell with which he has surrounded himself. Care should be taken that no emotional tone becomes attached to a movement. An objective attitude is an essential aid to the child in his becoming increasingly aware of these movements as they reappear. The objective attitude releases tensions, physically and psychologically freeing the child to work more easily.

(3) Attack of Purpose—Repeatedly the child has heard during the two preceding steps that these extraneous movements are largely habit patterns. He has been shown that some habit patterns are valuable, and some are of little worth, and that some are essential to continuance of life. He should be shown that habit patterns are modifiable, even to breathing and the heart beat. His recorded extraneous movements should be checked over with a view to discovering their worth. This is the "why" step. "Why do I wrinkle my nose?" "Is this movement of any value to me now?" Probably he will find that some movements are of value. These he should retain if it is the most practical movement to effect a specified objective. Those that are of no present value should be chosen to be eliminated. If the chosen one does not prove to be readily understood it is well to postpone work on it and start work on another. There is no object in continuing on any one specific movement for the sake of "sticking to" it, having once started. Here again the therapist must be alert to the child's needs. Maintainance of the objective attitude is extremely important for clear, direct, honest thinking, which in turn is fundamental in this therapeutic method.

(4) Analysis—Having chosen a movement to be modified, and discovered its worth (or worthlessness), the next step is to see how the movement works. In this step the study of the *looks* of the movement is accompanied by the study

of the *feel* of the movement. Already there has been some experience in the visual phase during the identification and recognition steps. This is particularly true of simple movements or of parts of a related series.

Analysis is incomplete unless it includes the kinesthetic. Introduction to and acquaintance with this step has been made in both "identification" and "recognition." Such definite questions as "Where do you feel the pull?" "What part of your shoulder gives you the feel of this movement?" "How does this movement of your cheek feel?" "Does it seem to be the same as last time?" "Do you feel your tongue hump up?" "Where and when?" The therapist can aid the child by touching the place or places he mentions. He may find that the "feel" is not at the point he indicates. Trying out various movements, tensing and releasing muscles, "playing around" with movements, gives him closer association with the feel of them. Recently a student, fourteen years of age, joyfully announced a discovery. "When my head drops, my arm raises. That is for balance. As I put my arm down my head comes up." It should be observed here again that an impersonal, objective attitude is highly desirable for best results.

A very interesting observation during these periods just explained is the discontinuance of other extraneous movements. Even during the identifying period a movement may begin to disappear. It would seem that taking these movements out of hiding and seeking out their purpose for existence does something to alter them. Certainly the closer scrutiny of the analysis step makes them no longer something to be considered as a part of the individual or something to be feared. Rather should he consider them as something external; something he may alter, modify, reduce or eliminate.

The length of time necessary to analyze any movement cannot be "set." It is obvious that more time is necessary to analyze some of the more complex than the simpler movements. Differences in individuals also are to be considered such as differences in ability, willingness, determination and condition of habit pattern. The determining factor is the extent to which he needs to analyze before he can do the next step. Sometimes it is necessary to go back for further analysis even after the next step has been started. Here also the therapist must be alert to the child's needs.

Not least among these needs is his feeling of personal worth. Even a small contribution to the analysis of any movement should be accepted with a word of encouragement. The child should be encouraged to see that *he* is the important person in the solving of these problems and that the therapist is an aide or guide.

(5) Imitation—The importance of this step cannot be too greatly emphasized. It is the step most frequently omitted in therapeutic work dealing with movement. If it is done at all it is with apology, or is just lightly touched upon. This may be because of the existing belief that anything practiced over and over becomes habitual. Repetition does tend toward formation of habit patterns. However, the imitation in these instances is not "practiced" with the thought of learning to do it, but of learning what happens as a specific movement is made. Close imitation of a movement presupposes a thorough knowledge of it. Thoughtful, purposeful imitation, always on a voluntary level, should not necessarily induce habit formation. On the contrary, being able to "turn on" (or off) a habit pattern at will should be a very definite step towards ability to alter it at will.

An important factor in determining the ultimate skill to imitate closely is the ability to relax. Definite and specific training in relaxation should be given either preceding or simultaneously with this study of habit patterns. In order to feel where the tension is it is necessary to be able to relax. If the entire body is tense and unrelaxed, awareness of localized tension is not easily accomplished.

For example, a child's arm is flexed, elbow close to the body and hand close to shoulder. The natural impulse is to use the extensor muscle to pull down the arm. This increases the tension. On the other hand relaxation of the already tightened flexor muscle quite easily drops the arm. To gain this relaxation, use of the same kind of kinesthetic awareness is valuable. Firmly touching the muscle which needs relaxing focuses the child's attention on it and does help him in relaxing. Progressive relaxation[7] is not attainable at first and is rarely achieved to the extent nor in the manner intended, but the principle of progress from one part to the next, and especially increasingly deeper relaxation is of great value to these children in learning control of habit patterns. The greater the ability to relax, the sharper is the differentiation between tensions and relaxation. Jacobson[8] suggests, "We remain in ignorance as to what occurs in the neuromuscular system simultaneously with the emotional experience."

"We desire to test the possibility thus opened (by observation that sensations . . . from . . .

muscular contraction mark the occurrence of mental activity) that the muscle sense, if carefully and critically employed, may put us on the trail of observations that may be objectively verified for the whole range of our mental experience."

Close imitation implies knowledge and understanding of the movements under scrutiny. It is interesting to see these children studying their imitations, criticising their own performances, and, in group meetings, trying out the movements of their classmates. Many kinds of emotions are expressed during these periods—joy at accomplishment, humor at the sight of some movements, impatience and even anger at a temporary inability to imitate satisfactorily. At all times during this imitating (faking) the child should try to make the faked pattern look and feel as nearly like the real pattern as is possible.

As soon as a movement is easily and successfully imitated this step is merged with application—the final step.

(6) Application—The goal in control of these extraneous movements is the ability to "turn on or off" any movement at will. To reach this goal the child is guided by these suggestions: (a) make up your mind what you want to do, and (b) practice it at every possible opportunity.

Practice during speech class periods aims toward breaking up the old habit patterns and establishing new ones. During all of these steps previously discussed, thinking is essential. It is as necessary in this last step, for unthinking practice of the old habit patterns could reestablish or strengthen them, while voluntary practice serves to break up these old patterns.

The procedure in this step is in two phases. One is the controlled use of the undesirable habit pattern. The movement is used in such places and in such a manner as to reveal its worthlessness and humorous appearance. It is "turned on" in one definite place, and "turned off" in all others.

The second phase is the use of the desired activity, freed of the undesirable movement. Since this latter phase is also a final goal, caution should be used in "arriving" before the child is ready for this phase. Psychologically, the end could be defeated, if the child were plunged into the final phase. Decision that he is ready for it rests upon his ability to use a movement easily and with understanding, or to eliminate it at will.

Assignments which will keep interest on a high level encourage thinking. These assignments should be within the child's ability to perform, and simple enough to allow his attention to be focused upon his habit pattern. For instance, this assignment evoked many laughs because it is funny to see and hear. (It is also easy to do.) "Read page ___, beginning at the last word on the page, reading up to the first word. Leave out every third word. Use your 'head plop' in place of the words omitted. For every good 'head plop' put a check below. If a 'head plop' appears on any other word cross out one check. See if you have more checks left on Friday than you did on Monday."

The entire class was amused as the following assignment was performed: "For ten minutes read aloud before the mirror, in a firm voice, using your 'shoulder push' before you say each third word. If you use it at any other time, or fail to use it as specified, push up your shoulder very hard 10 times, and say in a very loud voice, 'Push 'em up, Jimmy. Push 'em up'."

Gradually, the use of the undesirable habit pattern becomes less frequent and less severe. The child's facial expression and body posture also seem to change. The worried, strained, sometimes defeated look gradually disappears. Increasingly more frequent is his smile. He seems more willing to take part in recitations and group conversations.

Some extraneous movements may not yield completely. This situation can be accepted by a child if he has been led to face facts honestly. Any handicapping condition need be crippling physically or psychologically only in so far as the person allows it to be. Objectivity is paramount in gaining the ability to reduce or eliminate extraneous movements.

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Conditioning Men Through Y. M. C. A Physical Education

Harold T. Friermood

During 1944 Y.M.C.A.'s all over the world observed the 100th anniversary of the founding of their movement. In 1869 the Y.M.C.A. physical education program began operation in New York, Washington, D. C., and San Francisco. During its 75 years of existence it has been growing continually until now 700 Associations of the 1,300 in the United States conduct health and sports programs. There are in regular use 850 gymnasiums, 600 swimming pools, and 300 health service sections (providing massage, sun baths, hot rooms, steam rooms, cabinet baths, fomentations, etc.); hundreds of handball, squash racquets, badminton and tennis courts; play fields; summer camps; and special exercise, locker and shower rooms. These facilities that normally attract large numbers of participants have been used to capacity in the present all-out war effort.

Since 1941 a national policy has been in operation that includes all persons in the armed forces: "Your uniform is your membership card." The overwhelming acceptance of this invitation has been an encouraging indication of the service man and woman's interest in recreation, relaxation, bathing, swimming, conditioning and physical fitness. It has not been at all uncommon for local Associations to have 50,000 soldier participations a year over and above the regular or stepped-up volume of work. An additional proposal accepted a year ago provides up to 90 days free Y.M.C.A. privileges to young men after discharge during their critical readjustment period.

The Y.M.C.A.'s have many other services and programs to offer young people depending upon their facilities, the extent and abilities of lay and professional personnel, including personal and vocational guidance, boys' work, coed programs, religious training and emphasis, educational courses (in 25 of the larger cities full junior colleges and vocational schools are operated by Y.M.C.A.'s), public affairs forums providing an open platform, informal education courses in home-making, travel series, camping, cafeteria and residence hall service. The wide variety attracts thousands of groups and individuals and the physical education program alone will this year attract over 23,000,000 participations in organized classes, groups and teams, including as it does not only soldiers, sailors, marines, air corps personnel, and war workers coming at regular as well as odd hours (swing shifts, graveyard shifts during the midnight and early morning periods) but civilians who have developed renewed interest in physical fitness and general toning up. The usual Y.M.C.A. four point program has taken on a new significance since it involves:

(1) A medical examination to determine organic condition.

(2) Physical fitness tests to find out individual capacities and abilities.

(3) A broad program of activities from which to choose according to the individual's interest and needs as indicated by (1) and (2) above.

(4) Periodic rechecks to determine progress or regress.

While winning the war is the present major objective, planning and preparation for the postwar period also is important. A survey is being made of the Y.M.C.A. Health Service Sections to determine the type of personnel, and the nature of their training and experience, and the facilities available. In the job of rehabilitation there are certain types of reconditioning that can be done with Y.M.C.A. facilities under the direction of trained physical directors and health service operators and committees of medical advisers. These facts and figures were placed before Dr. Frank Krusen, Secretary and Director of the Baruch Committee, and Head of the Department of Physical Medicine at Mayo Clinic. They are also being taken into account by local planning

Secretary for Health and Physical Education, National Council, Y. M. C. A.'s of the United States, 347 Madison Avenue, New York 17, N. Y.

Fig. 1. Men in the armed forces are welcomed as "members" in the Joplin, Missouri, Y.M.C.A. and in all other "Y"s in the United States.

committees as comprehensive plans are developed for complete community service.

Two national Y.M.C.A. health service clinics have been held during the past two years bringing together experienced health service operators from all over the United States for a week of intensive study and practice in the technic of massage, use of special equipment, corrective and remedial work, conditioning exercises, teaching methods, prevention and handling of athletic injuries, cooperation with the medical profession, and ethical practice. The Y.M.C.A. health service role is recognized as that of *keeping well people well.* Outstanding leaders were recruited for each of these clinics. Students came to the clinic location from 15 different states and 20 cities including such widely separated places as Portland (Oregon), Denver, Pittsburgh, Chicago, Columbus (Georgia), Montreal, Quebec, Louisville, and St. Paul. Visits were made to veterans' hospitals, industrial welfare departments, and civilian hospitals as part of the program which included intensive work in the Y.M.C.A. setting of massage department, swimming pool and gymnasiums. During the last clinic a group of high school and college coaches was invited to come in for certain sessions and bring their student "trainers" with them for specialized instruction and practice in conditioning and handling athletic teams.

A national organization known as the Health Service Operators' Society of the Y.M.C.A.'s was formed more than a year ago. Its chief purposes are raising standards, developing better practice, encouraging further study, and finding postwar jobs for capable and well trained Y.M.C.A. health service technicians who are now in various services.

Y.M.C.A. health clubs and Business Men's Clubs have been crowded. Wartime demands have taken heavy tolls of mental and physical health among the business and industrial leaders of every community. Many of these middle-aged men have seen associates called up in the reserves and, after regular camp life and skillfully administered conditioning programs, come home looking trim and fit in well-tailored uniforms. Not only the men but their wives have seen the transformations, thus bringing pride and social pressure to bear. The result is that thousands of "stay-at-homers" have become interested in "how to get fit, keep fit, and like it." The problems of relaxation, change of pace, regular recreation, proper posture, medical examinations, diet, conditioning for specific parts of the body, i.e., feet and legs, abdomen, neck and shoulders, learning to swim, and learning new sports, have been faced by thousands of middle-aged men. While some have done nothing about it, many others have felt it to be their patriotic duty to get and keep "totally fit" for wartime, and even more important for the strenuous peacetime that will follow. A study is now in process to develop physical fitness standards for Y.M.C.A. men 25 to 45 years of age. Data on 2,000 persons is being sought.

When a prospective Y.M.C.A. member walks in to look around and see what he might like to do, he has many of the following activities to choose from:

Aquatics—National Y.M.C.A. program, swimming, diving, life-saving, warfare aquatics, recreational swimming, water games, co-recreational swims.
Athletics—indoor and outdoor.
Badminton
Basketball
Boxing
Classes for instruction conditioning and physical fitness, correctives, relaxation and recreation, teaching of sports.
Fencing
Gymnastics—tumbling, apparatus, trampoline.
Handball
Health Education—movies, talks, pamphlets, books, posters, institutes.
Health Service—massage, lights, baths.
Jiu Jitsu, Judo
Leaders' Clubs
Leagues and tournaments
Medical examinations
Physical fitness tests

Softball
Squash racquets
Table tennis
Tennis
Volleyball
Weight training, lifting.
Wrestling

With such a selection the average member is bewildered. He needs some guidance, direction and encouragement. In many Y.M.C.A.'s he is given a free medical examination and the local battery of physical fitness tests. He then chooses or is assigned to a group, class or activity. He receives a basket or locker assignment, and a gym suit, and starts in. His participation is watched by the instructor or group leader who gives him the coaching or instruction he needs and wants. He meets new friends and finds an opportunity to express himself by learning new skills, by helping others, by serving as a team captain, on a committee or on a council. If he is regular and faithful, he becomes physically fit, and he gradually catches the spirit of the Young Men's Christian Association—consideration, tolerance, appreciation of the wants and desires of others, the value of friendships, the need for a life philosophy, the place of and need for religion, and the necessity for cooperating in making adequate provision for all the youth of every community.

Each local Y.M.C.A. has local autonomy—controls its own affairs. It is managed by a local Board of Directors and serves its community as seems best within the framework of its stated purpose. It is not a chain store organization with a central authority located in a far-away city. It serves and is controlled right at home. It is important to keep this point in mind while a world-wide conflict goes on for the purpose of preserving the things the Y.M.C.A. believes in and practices.

State committees and Area Boards, made up of representatives from local Associations, consider all phases of the Y.M.C.A. program, make recommendations, and carry out plans and policies agreed upon.

The National Council is an assembly of delegates from the state conventions and area councils. It takes an overall look at the total picture and discusses and formulates policies and strategy as recommended procedures for local Associations.

Professional workers serve on the National Council staff, on the state and area staffs, and on local staffs. Normally the total group of professional workers numbers around 3,500 of which

Fig. 2. Gym class for service men.

500 to 600 are physical educators. Y.M.C.A. secretaries are not shifted around at will but are offered positions which they may accept or reject if they so choose. The Committee on General and Professional Training and the Committee on Certification are constantly at work studying ways of raising the standards and improving the quality of the personnel. The Association of Secretaries is the professional society of all Y.M.C.A. secretaries who care to join. Some 2,600 belong even during this wartime period. One of the 15 sections of the Association of Secretaries is the Physical Education Society of the Y.M.C.A.'s of North America.

The Y.M.C.A. wartime physical fitness program was set up at the national gathering in Cleveland early in the spring of 1942. The national meeting of Y.M.C.A. physical educators held at Lake Geneva last June had among its platform speakers Col. Howard Rusk, Convalescent Training, Medical Division, Army Air Forces; Dr. C. H. McCloy, Civilian Consultant on Reconditioning, Surgeon General's Office; Dr. Arthur H Steinhaus, Chief Division of Health and Physical Fitness, U.S. Office of Education; Dr. T. K. Cureton, Jr., Dept. of Research in Physical Fitness, University of Illinois; and others.

It is through this organization and with these facilities that the Y.M.C.A. wartime physical education program has been conducted. Schools and colleges have made regular use of many of these facilities and services for teaching swimming and conducting meets and tournaments. They have called upon Y.M.C.A. men to help in the administration of tests and assist in other ways in the school buildings. Closer cooperation has been established with medical societies, hospital staffs and state and local health departments. In some cities a fresh look is being taken

at the task of vocational rehabilitation and frequent consultations are carried on beween the Y.M.C.A. and other professional staffs. There are certain aspects of physical fitness testing and conditioning that some Y.M.C.A.'s are well situated to conduct and in which they have had valuable experience.

During the year of Y.M.C.A. centennial observance the chief emphasis has been in planning for more effective service to youth through the varied and appealing programs in 10,000 Y.M.C.A.'s throughout 68 countries of the world. Y.M.C.A.'s have served young men during four wars—Civil, Spanish-American, and the two world conflicts. The original purpose of spiritual development, for which the Y.M.C.A. was organized by young George Williams in London in 1844, has remained the central objective but other objectives have been added in order to supply needed services. Now the Y.M.C.A. triangle symbolizes personal unity and the interrelatedness of spirit, mind and body. The need for giving attention to the physical development of young men through conditioning activities and recreative sports in congenial groups where friendships are made and social adjustments take place continues to rate a high priority in every community.

Infantile Paralysis

Don W. Gudakunst, M.D., Dr. P.H.

The infantile paralysis outbreaks during the year 1943 resulted in a total of 12,429 cases. This figure represents one of the largest epidemics encountered to date, exceeded only by the years 1916 and 1931.

This outbreak represented also the greatest concentration of cases in a circumscribed area since the 1916 epidemic. A map of the United States (Fig. 1), showing the incidence of infantile paralysis during this year, reveals that the cases were almost entirely localized in the southwestern and far western portions of the United States. Morbidity rates in some of these communities were truly staggering.

Statisticians who have studied incidence rates for epidemic and nonepidemic years usually state that an incidence of five cases per 100,000 population is "not excessive," but when the rate rises to a figure of twenty per 100,000, it is then of "near-epidemic proportions." The epidemic of 1943 had, in some of the counties affected, rates exceeding 300 per 100,000 population.

These are merely figures, and figures often can be misleading. Especially is this true of infantile paralysis. There are many factors which make infantile paralysis figures of doubtful statistical value. The lack of uniformity of reporting cases is one prime flaw. Unlike other diseases such as pneumonia, diphtheria or influenza, there is no one set of diagnostic standards to be applied universally throughout the country.

The various states, through their regular health departments, set up their own regulations governing the reporting of infantile paralysis. Some report only those cases which show definite paralytic symptoms; others record cases in the preparalytic stage, and some include the abortive type.

The preparalytic form of the disease is that type of infantile paralysis infection where the patient has no definite muscle weakness and no well defined paralysis but has the more general symptoms indicative of a central nervous system involvement such as stiffness, rigidity and fever. The abortive type is a broad and vague term. In this stage the patient has a general systemic reaction such as nausea, fever, diarrhea or constipation, and vomiting. These so-called abortive types would not be diagnosable as infantile paralysis excepting as they occur in and during an epidemic of the disease. With these vague symp-

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toms, many disorders not of true infantile paralysis origin may be diagnosed as this disease and be included in the statistical records, or they may not be reported at all. These sources of error make it difficult to draw any definite conclusions from a statistical survey of infantile paralysis.

Not only is it unwise to infer too much from the records of reported cases, but it also is nearly impossible to evaluate any form of therapy used in the attempt to alleviate or minimize the crippling effects of the disease. There is no way to say with certainty which particular individual has a type of paralysis that may culminate in permanent paralysis or which will recover spontaneously. Therefore, it is impossible to declare that any mode of treatment employed in any such individual case has prevented crippling. The records, such as they are, reveal that approximately 50 per cent of reported infantile paralysis patients will develop some form of crippling. Only about 25 per cent will be left with a permanent type of paralysis. About 75 per cent of all reported victims in an average outbreak will go on to complete recovery.

One of the reasons for the lack of objective standards in evaluation of the disease is that as yet no laboratory technic has been developed as a diagnostic procedure. There are numerous tests more or less infallible as diagnostic aids for many other diseases. There are serological tests and dark field examinations for syphilis. There are agglutination and precipitin tests for typhoid and pneumonia. But there is no such test for infantile paralysis.

Many diseases do not require such confirmatory laboratory tests but are easily and definitely diagnosed by clinicians because of their manifest symptoms. Most diseases have definite patterns, but infantile paralysis does not. Here the symptoms are so vague and indefinite that even the specialist is challenged in diagnosing an infantile paralysis case unless it happens to be a patient with a severe involvement. There are other neurotropic virus diseases which so closely resemble infantile paralysis that it often is nearly impossible to make a differential diagnosis. Western equine encephalomyelitis and St. Louis encephalitis in some stages so closely simulate infantile paralysis that great difficulty is encountered in distinguishing between them.

Infantile paralysis has some semblance of a pattern in its occurrence. The disease occurs in its epidemic form during the late summer months, reaching its peak within the first two weeks of September. The decline in the number of cases on a nationwide basis usually begins to occur in the second or third week of September, with a gradual drop for about four weeks following an initial accelerated decline (Fig. 2). Although the heaviest outbreaks occur during the summer period, there are always a few cases reported somewhere in the United States even during the winter months.

Added to other difficulties of infantile paralysis, there is a great problem of evaluating the patient's physical condition in the various stages of the disease. We do not yet know the complete pathological story and its relation to muscle function. We do know that if the motor nerve cells are totally destroyed, as happens in the true paralytic type of the disease, the function of the muscle served by those destroyed nerve cells is forever lost. But what happens when the nerve cells are only temporarily damaged, causing interference with function of the corresponding muscle, is not entirely clear.

Epidemics of infantile paralysis are disasters just as fire, tornado and flood. They occur in serious out-

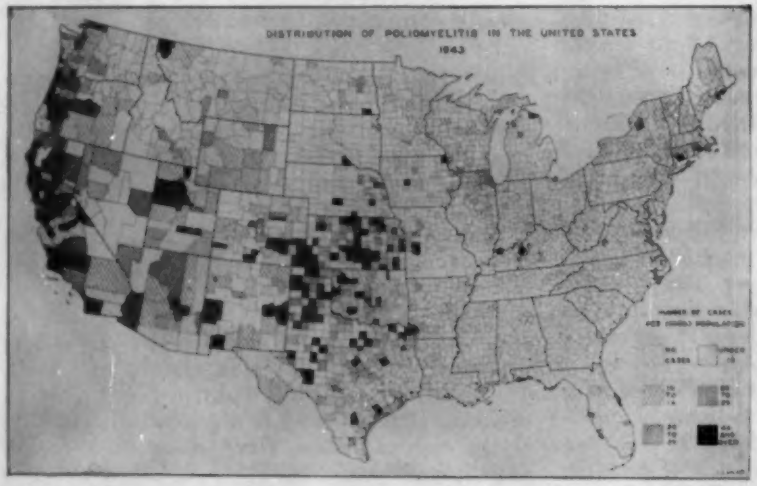
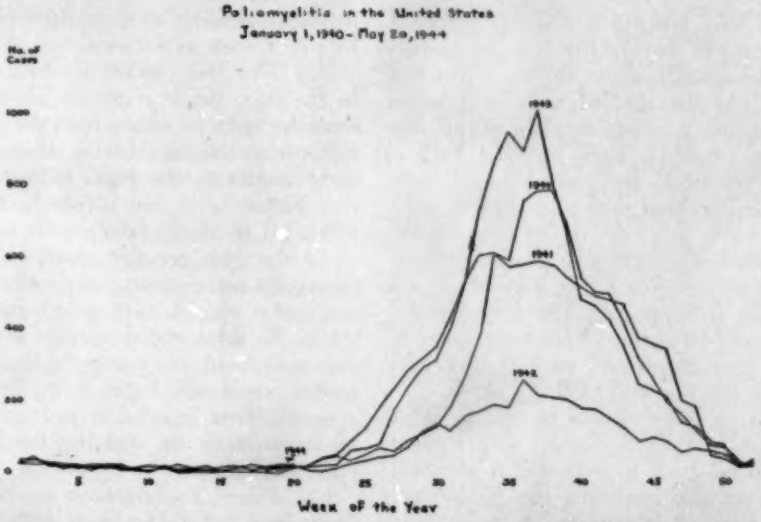


Figure 1. (Source: Prevalence of Poliomyelitis in the United States in 1943. C. C. Dauer, Epidemiologist, District of Columbia Health Dept. From the Public Health Reports: Vol. 59, No. 2—June 2, 1944—pp. 712-719.)

breaks but seldom strike the same area in successive years. It would be impractical, on a nationwide basis, to provide each community with sufficient hospital beds, nurses, physical therapists and physicians merely to be able to say "now we have at hand sufficient resources to meet an epidemic of infantile paralysis." Rather, because of many factors each community should rely on the resources already in any particular area and supplement them by setting up administrative procedures to implement these resources if and when an epidemic should occur.



The people of the community must be prepared by the various community organizations and health agencies to render epidemic aid to themselves and to their neighbors. Records should be kept of hospitalization facilities and plans should be ready for increasing such facilities. If there is no physical therapist in the community, efforts should be made to interest some qualified person in taking such specialized training. Even with such procedures, facilities may break down under the stress and strain of a vicious outbreak. When you realize that each infantile paralysis patient requires about twenty-four hours a day of professional services to insure reasonable medical care, you can see the difficulties of any community in providing itself beforehand with sufficient resources to handle an epidemic. There just aren't enough of such trained personnel to go around. Physicians, nurses and physical therapists have to be transported from one area to another in order to try to bring a reasonable amount of medical care to all victims.

The situation is not hopeless. Intelligent planning can do much to alleviate the consternation and panic that are the handmaidens of an epidemic of infantile paralysis. Only by close cooperation of public spirited persons and the regular health agencies of a community can preparations and administrative procedures be set up to insure to each infantile paralysis victim the medical care to which he is entitled.

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSIOTHERAPY REVIEW, 720 North Michigan Avenue, Chicago 11, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given.

Sleeping Habits of Infants

Mary R. Doyle, R.N.

A baby's walking posture is a direct result of his muscular growth during the time he spends in his bassinet—usually about twenty hours out of twenty-four. As the desired walking posture is one with the feet pointing straight ahead, abdomen a trifle rounded, back straight with a slight curve at the neck, and head held tall with chin in, it is obvious that muscular growth must be directed toward this end if the best results are to be obtained. The extensive bassinet period is the breeding ground for either a good or bad start in muscular development. The same careful supervision should be applied here for a correct, habit-forming start in posture as that exercised over the baby's feeding and clothing needs.

Stated briefly, a baby should be put to sleep first on one side, then on the other, with a short relief period on his back in between. A constant watchfulness over the positions the baby may assume in the bassinet is required to make sure that no position is held too long, that crooked or otherwise unnatural positions are not allowed to develop, and that he is at all times in correct bodily alignment.

In view of their background and special training, the logical persons to take the initiative in educating parents along this line are the physical therapists.

Probably the most difficult condition, or habit, to combat is the seemingly universal tendency among mothers to allow their babies to sleep face-lying. This position is the "easy way out"—the line of least resistance, as it were—and carries with it the most destructive, habit-forming misdirection of muscular growth of any sleeping position that the baby can assume. There are many reasons, all good, why a baby should never be allowed to sleep face-lying. During his waking hours it is desirable that he should be placed on his stomach for exercise periods, but never should he be allowed to go to sleep in that position.

Of the many reasons referred to above, the nine outstanding ones against placing the baby face-lying are as follows:

(1) *The feet cannot be held at right angles to the legs.* While lying on his stomach the feet must be held in either outward or inward rotation. It is impossible for them to be held at right angles to the legs. If they are trained to turn either in or out before he stands the baby will tend to do so while walking.

As the feet are the foundation of the body they must be as strong as possible so as to carry the body weight with a minimum amount of strain. In thinking of upright posture the shoulders and head are generally thought of first. In reality we should begin with the feet and work upward. That is why it is imperative to place great emphasis on training the feet to grow at right angles with the legs.

(2) *When the feet turn in, the bones of the lower legs and ankles bend outward.* While face-lying with the feet turned in there is a strain on the ankles and lower legs. This strain runs up to the knees and hips. The mattress on the baby's bed is soft enough to allow the outside of the ankles to protrude and the inside to tighten. The body weight should be carried along the outside edge of the sole of the foot, not upon the ankle as this sleeping position would encourage. The knees would roll in and the muscles along the outside of the legs would lengthen, the inside muscles tighten, if the baby sleeps for long periods in this position.

(3) *With feet turned out, the hips are held in outward rotation.* If the feet are turned out, the inside of the ankles will press into the mattress causing the inside leg muscles to lengthen and the outside ones to tighten. The muscles controlling the ankles should be balanced so that both sides pull equally. If this balance is disturbed, the small bones of the foot cannot grow in their correct formation. The feet will be held turned outward while walking, bringing the body weight onto the inside of the feet. If the hips are kept in outward rotation for long

El Monte Road, Danville, California.

periods the muscles lying along the outside of the leg will tighten. This will cause the legs and feet to turn outward when the child begins to walk.

(4) *The baby may crawl up in his bed into a "frog position."* If a baby is placed face-lying after feeding he may crawl upon his knees to relieve the pressure on his full stomach. Then he may settle back upon his lower legs. His buttocks are very heavy and the pressure can cause severe bowing of the lower legs. The toes must be held extended so that the foot is an extension of the leg rather than a firm base for the body weight. This position may result in the muscles lying along the back of the leg tightening and the baby will walk on his toes.

If the feet are held in a twisted position during infancy, the ankle bones that harden first will slip out of their places filling the spaces where other bones should grow.

(5) *The middle of the back will sag.* In any of the three face-lying positions—feet in outward rotation, inward rotation, or frog position—the abdomen will flatten against the mattress and the spine will curve downward in the lumbar region. Because of this position when the baby begins to walk the muscles of the middle back will be tight and the back carried with a definite curve inward above the pelvic bones. Many of us have seen very young children with a typical "Charlie Chaplin" walk, with a protruding abdomen, and have not realized that such a grotesque posture is totally unnecessary even during the initial, uncertain stage of his upright balancing.

(6) *While face-lying the head must be held to one side.* In sleeping face-lying the head must be turned to one side causing the muscles on the upper side of the neck to shorten while on the opposite side they will be held in extension. There will be continually a tension at the junction of head and spine. It is especially important to avoid this condition because of the nerves entering the spinal column at this point.

(7) *Pressure on the jaw.* Dentists tell us that many of the children whose teeth must go into braces slept face-lying during infancy. All mothers should be reminded that the head is a bony cage and heavy. If its weight is kept on the same point of contact it is sure to flatten the underlying bone. When the jaw bone is pressed out of its natural shape the teeth must grow in whatever space they can push themselves through.

(8) *The chest.* The chest in an upright or walking position should be held high and rounded as much as possible to allow the lungs to expand to their fullest. In the face-lying position this is rendered more difficult because the arms are attached toward the back of the chest. During face-lying the arms roll forward causing the back muscles to be held in extension and the chest muscles to tighten.

(9) *Breathing face-lying.* If the chest muscles are held contracted for long periods they will not expand enough to allow a sufficient volume of air into the lungs to lift the chest up and out. Gradually this will cause less and less air to enter the lungs. With the chest space reduced the heart and stomach are crowded.

During my structural hygiene clinics I have been asked if babies should ever be placed on their stomach. The answer is "Yes, by all means." From the beginning the baby should be placed in this position *during his waking hours.* The lifting of his head and the moving of his arms and legs strengthen his muscles better than formal exercise. While the baby is awake in the face-lying position, it is easy to understand how the long muscles of the back can develop more rapidly through his activity than would be possible while lying on his back.

Many inquiries have been made as to why babies have been placed on their stomachs to sleep and the only reason ever given is a vague "They seem to enjoy it." We all know that babies enjoy many things that would not contribute to their physical well being. Is this an excuse for indulging them? In my opinion it is far better to see that the baby's muscles have a chance to develop symmetrically than to have chronic feet and posture problems with which to contend in his adolescent years.

Schools Approved for Training Physical Therapists

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Entrance Requirements*	Emergency Course				Regular Course			
		Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
Children's Hospital, Los Angeles	a-b-c	6	FebAug	$200	Certificate	12	FebAug	$200	Diploma
College of Medical Evangelists, Los Angeles[1]	a-b-c	..	.....	....	.....	12	JanJuly	$215	Certificate
University of California Hospital, San Francisco[1]	a-b	..	.....	....	.....	12	MarOct	$150	Certificate
Stanford University, Stanford University, Calif[1]	a-b-d[2]	7	Quart.	$286	Certificate	10	Quart.	$409	Cert. or Degree
Fitzsimons General Hospital, Denver	†	6	FebAug	None	Certificate	..	.....	.....	.....
Walter Reed General Hospital, Washington, D. C.	†	6	Quart.	None	Certificate	..	.....	.....	.....
Lawson General Hospital, Atlanta, Ga.	†	6	†	None	Certificate	..	.....	.....	.....
Northwestern University Medical School, Chicago	a-b-c	..	.....	....	.....	9	JulyOct	$200	Certificate
State University of Iowa Medical School, Iowa City	b-c	6	MarSept	None	Certificate	9	MarSept	None	Certificate
University of Kansas School of Medicine, Kansas City, Kans.	c[3]	..	.....	....	.....	9	Varies	$25[3]	Cert. or Degree
Bouve-Boston School of Physical Education, Boston	a-b-c[4]	6	June	$250	Certificate	3-4 yrs.	Sept	$400 yr.	Dipl. or Degree
Harvard Medical School, Boston	a-b-c	6	Varies	$250	Certificate	9	Varies	$300	Certificate
Boston University, College of Physical Education for Women, Sargent College, Cambridge, Mass.	a-b-c	Given in conjunction with Harvard				19	Oct	$435 yr.	Cert. & Degree
Percy Jones General Hospital, Battle Creek, Mich.	†	6	†	None	Certificate	..	.....	.....	.....
University of Minnesota, Minneapolis[1]	a-b-c[5]	..	.....	....	.....	12	March	$168[6]	Certificate
Mayo Clinic, Rochester, Minn.[1]	a-b-c	6	JanJuly	None	Certificate	9	JanJuly	None	Certificate
Barnes Hospital, St. Louis	a-b-c	..	.....	....	.....	9	Oct	$200	Certificate
St. Louis University School of Nursing, St. Louis[1]	a-b-c[4]	8	JanSept	$250	Certificate	4 yrs.	JanSept	$250 yr.	Cert. & Degree
O'Reilly General Hospital, Springfield, Mo.	†	6	JanJuly	None	Certificate	..	.....	....	.....
Columbia University, New York City	a-b-c	..	.....	....	.....	10	FebSept	$390	Certificate
Hospital for Special Surgery, New York City[1]	a-b-c	6	Jan	$200	Diploma	9	Sept	$300	Diploma
New York University School of Education, New York City[1]	a-b-c	..	.....	....	.....	9	FebSept	$432	Cert. or Degree
Duke University School of Medicine, Durham, N. C[1]	a-b-c	..	.....	....	.....	12	AprOct	$200	Certificate
Cleveland Clinic Foundation Hospital, Cleveland	a-b-c	..	.....	....	.....	9	Sept	None	Certificate
D. T. Watson School of Physical Therapy, Leetsdale, Pa.[1]	a-b-c	6	AprOct	$200	Diploma	12	Oct	$200	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia, Pa.[1]	a-b-c	..	.....	....	.....	12	JanSept	$200	Certificate

Name and Location of School	Entrance Requirements*	Emergency Course: Length in Months	Emergency Course: Classes Start	Emergency Course: Tuition	Emergency Course: Certificate, Degree, Diploma	Regular Course: Length in Months	Regular Course: Classes Start	Regular Course: Tuition	Regular Course: Certificate, Degree, Diploma
Brooke General Hospital, San Antonio, Tex.	†	6	JanJuly Oct	None	Certificate	..	.....	.....	....
University of Texas School of Medicine, Galveston	a-b[7]	..	.....	....	.....	9	JanMar July	$130[6]	Certificate
Bushnell General Hospital, Brigham City, Utah	†	..	JanJuly	None	Certificate	..	.....	.....	.....
Richmond Professional Institute, Richmond, Va.	a-d[7]	6	Sept	$200[6]	Certificate	9-12	Sept	$200[6]	Cert. & Degree
AshfordGeneral Hospital, White Sulphur Springs, W. Va.	†	6	†	None	Certificate	..	.....	.....	.....
University of Wisconsin Medical School, Madison[1]	a-b[8]	..	.....	....	.....	9	Sept	$96[3]	Certificate

* Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses.

† For complete information regarding entrance to Army training schools write to Major Emma E. Vogel, Director of Physical Therapy Aides, Office of the Surgeon General, War Department, Washington, D. C.

1. Male students are admitted.
2. High school graduates accepted for a four-year course leading to A.B. degree; students admitted quarterly and tuition is $143 per quarter.
3. High school graduates accepted for four-year college course.
4. High school graduates admitted to regular course.
5. Medical technology graduates with B.S. degree also admitted.
6. Nonresidents charged additional fee.
7. Those with degree from any accredited college also accepted.
8. Students with two years of college admitted to emergency course only.

Reprints Available

Reprints and pamphlets as listed below may be obtained from the following organizations:

American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.:

"Physical Therapy: "A Profession with a Future," by Mary Nesbitt. (Free)

"Physical Therapy — A Growing Profession." (Free)

"Physical Therapy: A Service and a Career." (Free)

"Physical Therapy in a Plastic Surgery Unit," by Honor C. Wilson. (Price, 5c)

"Proceedings of Poliomyelitis Round Table from 1944 Conference." (Price, 25c)

Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York 19, N. Y.:

"Improvised Equipment for the Physically Handicapped (1944)," by Margaret S. Arey. (Free)

"The Nursing Care of Patients with Infantile Paralysis," by Jessie L. Stevenson. (Free)

Institute for the Crippled and Disabled, 400 First Avenue, New York 10, N. Y.:

"The Physical Demands of Daily Life." (Price, 10c)

The Physiotherapy Review

Editor-in-Chief: MILDRED ELSON
Associate Editors
GERTRUDE BEARD
LOUISE REINECKE
BESS SEARLS

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VOL. 25 *March-April* NO. 2

In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for March 25, 1944, it was stated that: "Attention has been focused on the need for technical personnel in hospitals, clinics and physicians' offices. To conserve the time of physicians who remain in practice, hospitals and clinics are attempting to acquire an increased number of skilled assistants." Hospitals reported that they did not have their normal quota of experienced personnel and were forced to limit the work of their departments. The number of unfilled positions in civilian hospitals, at that time, was at least one-fifth of the available number of physical therapists. The estimated requirements for physical therapists was eighty per cent above the number available.

A review of our present needs brings out some rather interesting figures. The number of trained physical therapists now is 2320. These figures can be further broken down: Army, 1250; Navy, 20; Veterans Bureau, 30; United States Public Health Service, 10; other federal agencies, 10; civilian installations, 1000. An estimated minimum need is 2500 for all governmental agencies, 3000 for civilian installations, making a total of 5500. Some of the factors affecting the increased needs are: the large poliomyelitis epidemic of 1944, in which there was reported an excess of 19,000 cases; a large percentage of these cases received inadequate care because of the lack of personnel. The Army, Navy and Veterans Bureau needs have sharply increased and will continue to do so since casualty lists still are very high. Hospital admissions have increased 38 per cent in the past four years. The number of physical therapists has increased only 28 per cent, and our number was inadequate even in 1941. In the March 27, 1937, issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, it was stated: "The public is gradually learning what to expect of hospitals. The best that is known in medical skill, technical aid and personal comfort should be available in every institution that calls itself a hospital."

These are just a few of the many factors contributing to the very urgent need for more physical therapists. Physical therapy is an essential service which every hospital should provide. However, opportunity to provide this service will be lost unless personnel can be trained to fill the need. The National Foundation for Infantile Paralysis, recognizing this need, has made available a large grant for the training of physical therapists. The American Physiotherapy Association is cooperating to the fullest extent in securing qualified personnel for this very important program.

Cancellation of 1945 Conference

In response to a request from the Office of Defense Transportation that all conventions be cancelled, the Executive Committee voted at its semi-annual meeting to cancel the 1945 conference. Details will be sent out in a membership letter.

Infantile Paralysis Pamphlet

The proceedings of the Round Table Discussion on Infantile Paralysis held at the 1944 annual conference are now available in printed form —cost 25c. This booklet may be obtained from the American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.

Reprints of the article entitled "Physical Therapy in a Plastic Surgery Unit" by Honor C. Wilson, Capt. (A.A.M.C.), A.I.F., which appeared in the January-February 1945 issue of the REVIEW, are available at the cost of 5c each. These reprints may be obtained from THE PHYSIOTHERAPY REVIEW, 720 North Michigan Avenue, Chicago 11, Illinois.

National Foundation for Infantile Paralysis:

Physical Therapy Program

A critical shortage of qualified physical therapists which endangers the proper care of infantile paralysis victims has caused the National Foundation for Infantile Paralysis to appropriate $1,267,600 for the training of these vitally needed specialists, Basil O'Connor, president, announced recently.

Present day medical treatment of patients with infantile paralysis demands more and more physical therapy, Mr. O'Connor explained. "A physical therapist is a technician who uses physical agents such as heat, electricity, light, exercise, rest, muscle training and similar methods in contrast to the use of drugs, biological and surgical technics.

"Today there are only 2,500 qualified physical therapists, of whom more than half are in the Armed Forces. With earlier and more extensive use of such methods of treatment, so imperative in the treatment of infantile paralysis, twice the number already trained could be used for this disease alone. It is estimated that an additional 5,000 could be used right now, not only for the treatment of infantile paralysis, but also for aiding recovery from many other diseases and disabilities."

The $1,267,600 program developed under the guidance of a special committee established in the field of physical therapy consists of three parts:

(1) $1,107,000 for scholarships to train new physical therapists,

(2) $82,000 for fellowships to provide additional teachers, and,

(3) $78,600 for general development of the field of physical therapy.

"We feel," said Mr. O'Connor, "that this step constitutes one of the outstanding contributions which the American public has made through the March of Dimes to the fight against infantile paralysis.

"The National Foundation since it was organized in 1938 has spent up to now more than a million dollars in the development of the fields of physical medicine and physical therapy.

"This new program is designed to provide urgently needed personnel necessary to fulfill the National Foundation's pledge that complete medical care will be assured, so far as possible, for infantile paralysis victims, regardless of age, race, creed, color or lack of financial ability to pay for services rendered."

The $82,000 allotted for teaching fellowships will provide additional teachers of physical therapy, and make possible a greatly expanded training program. At least 16 fellowships in teaching are available under this plan, each providing $2,000 plus tuition for one or two years, depending on the accepted candidate's educational background and program of study.

Under the chairmanship of Dr. Irvin Abell, of Louisville, Kentucky, chairman of the Board of Regents of the American College of Surgeons, a special committee has been formed to assist in the development of the new program. In addition to Dr. Abell, it includes: Dr. Donald B. Armstrong, New York, 2nd vice president, Metropolitan Life Insurance Company; Dr. Max M. Peet, Ann Arbor, Michigan, Chief, Neuro-Surgical Section, University Hospital and Professor of Surgery, University of Michigan Medical School; Dr. Morris Fishbein, Chicago, Editor, The Journal of the American Medical Association; Dr. Arthur L. Watkins, Boston, Director of the Department of Physical Therapy, Massachusetts General Hospital; Dr. M. G. Westmoreland, Chicago, staff, Council on Medical Education and Hospitals of the American Medical Association; Miss Jessie Stevenson, New York, President of the American Physiotherapy Association; Miss Lucille Daniels, Acting Director, Division of Physical Therapy, Stanford University; and three representatives of the National Foundation, Mr. O'Connor, Dr. Don W. Gudakunst, Medical Director, and Miss Catherine Worthingham, the National Foundation's Director of Technical Education.

Preparation for entrance into approved schools of physical therapy requires graduation as a nurse, or physical educator, or two years' college training including biology and other basic sciences. Candidates for physical therapy scholarships and graduate physical therapists with field experience qualified for teaching fellowships should apply to The National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y., or to the American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.

Captain H. C. Wilson—AAMC

Captain Honor Cameron Wilson graduated in physical therapy at Adelaide, South Australia, in 1935. In 1936 she went to Victoria and did post-graduate work in anterior poliomyelitis at the Children's Hospital and in the Asthma Clinic of the Alfred Hospital, Melbourne.

Later she was on the staff of the Launceston Public Hospital, Tasmania, doing general work which included many cases of poliomyelitis.

At the end of 1937 she visited England and was able to see something of physical therapy there at St. Thomas' Hospital, London, and Ancoats Orthopedic Hospital, Manchester.

Volunteering in 1939, she saw service in the Middle East, first with an Australian General Hospital.

On the formation of the 2nd Australian Facio-Maxillary and Plastic Surgery Unit, Miss Wilson was appointed to the staff and worked under Major B. Rank. She returned to Australia with this unit in 1942.

After almost five years in the Army, Captain Wilson has been released to take charge of the Physical Therapy Department and the training of physical therapy students at the Royal Adelaide Hospital, Adelaide, South Australia. She was placed on the Reserve of Officers AAMC on September 16, 1944, with the rank of Hon. Captain.

Physical Therapists Meet to Discuss Work

203rd General Hospital, France. — The first meeting of United States Army Physical Therapists in continental Europe was recently held at a large general hospital in France, to exchange ideas on methods used in restoring sick and wounded soldiers back to health, and to discuss the professional problems of their departments.

The physical therapists, who assembled from nine hospital units, toured the hospital's physical therapy section, which is headed by First Lieutenant Carol L. Spensley, Vermillion, S. D.

Particular interest was shown in the improvised equipment and devices set up in the corrective gymnasium. Typical example of improvisation was a simple arrangement of pulleys, ropes and weights fastened to the room's steam heat radiator-pipe, which provided a means of exercising and strengthening injured knees and weak thigh muscles.

Therapists from two hospitals reported their methods of treatment in a few isolated cases of infantile paralysis.

The shortage of physical therapy technicians throughout the Army also was discussed. It was agreed that not only are additional physical therapists needed overseas, but it was also hoped that there would be an increase of technicians joining the service to continue the prolonged treatment sometimes necessary.

Physical Therapy in the Marianas

The following is taken from a letter received from 1st Lt. Barbara Robertson, Medical Department Physical Therapist, now assigned to a general hospital situated in the Mariana Islands.

* * *

Upon arriving on this little island, I was naturally curious as to what sort of establishment we would be given in which to carry on our physical therapy activities. It was not long before my curiosity was satiated. I was presented with one ward tent (approximately 40′ x 20′)—just the tent and nothing else. I insisted that a floor was essential, as I couldn't quite see the machines bogged down in mud which was ever present at that time. Finally, although we were told there was absolutely no lumber available, the powers-that-be consented to let us use lumber salvaged from boxes in which beds and bed springs had been crated. So then the boys went to work. As there was nothing suitable for a foundation, the floor was just put down—cuddling the contours of Mother Earth. Consequently, we have a rollicking, rolling floor with quite a decided slope which is somewhat confusing at time and makes you wonder what has happened to your equilibrium.

The uprights along the sides were also constructed of rather slim crating boards, this making the whole structure a bit flimsy and insecure. Nevertheless, it has withstood some very heavy gales in which the "super" structure swayed back and forth in accord with the gusts of wind, but never collapsed. In order to protect ourselves from the unbearable heat—due to a combination of the heat enamating from the lamps and the oven-like quality of air permeating beneath a black tent top, we made a ceiling of sheets, which has helped considerably in decreasing the temperature within the tent.

Our location, right on the brink of a hill and overlooking the picturesque harbor, would be ideal were it not for the fact that some unkind soul saw fit to locate the electric generator in our immediate vicinity and it rumbles on noisily and continuously until you're really concerned as to whether everyone is losing his sense of hearing or whether it's just you—losing your senses. I

come away from the clinic in the afternoon shouting lustily at everyone until suddenly I realize that such volume of voice is very unnecessary.

Our equipment, which incidentally is inadequate — as is the space — consists of the usual bakers, infra-red lamps, an ultraviolet machine and a galvanic machine (the only one on the island, judging by the number of RD tests I've been giving). We also found a discarded Jap bike which was promptly converted into an exerciser. For plinths we have been using the regular hospital beds with boards beneath the mattresses. Height can be added by the use of shock blocks.

This somewhat crude setup, I rejoice to say, is temporary, and soon we will have a two-quonset hut clinic. This will give us a clinic measuring 96′ x 20′ and should be very nice. I drew up a plan (this makes the third physical therapy clinic we've set up since coming overseas) and if available material allows, I think it will be highly satisfactory and convenient for this place. Additional equipment has been ordered and plinths, desks, tables, stools, gymnasium equipment, etc., will be constructed by the engineers. As far as I'm concerned, we can't move into our new place too soon.

Our day begins at 6:45 a.m., and the patients literally swarm about our present "palace" throughout the day, usually keeping us busy until 3 or 4 o'clock. Besides patients swarming around, we have the questionable honor of the presence of many snails which fasten their slimy bodies on the floor, along the sides, or on the desk. Each morning the boys have to clear the desk of their unwelcome presence. (Incidentally, the Japs eat these lowly snails by the bushel. But then—they are Japs and we can't account any more for their peculiar appetites than we can for their unpredictable actions.)

Occasionally a stray rat or mouse can be seen scurrying around the edge of the clinic, but they don't particularly bother us during the day. God forbid that I'd ever have to spend a night there! This island is infested with rats. We had one in our quarters (pyramidal tent) and you can imagine what a turmoil ensued—in a group of five females!

As far as patients are concerned, we have had a lot of chronics, plus the usual number of sprains, dislocations, etc. However, with the influx of battle casualties, our work is becoming increasingly interesting.

Life's little comforts are more numerous now than they were when we first arrived. We now have electric lights in our tents, nice cold showers, and yesterday we were given mattresses and pillows for our G.I. cots. Eventually our quarters will be quonset huts, but I think a tent is almost preferable in this climate.

The Physical Therapy Branch of the Medical Department of the Army invites attention to the section on mechanotherapy in the 1944 "Year Book of Physical Medicine." This section includes a reprint from THE PHYSIOTHERAPY REVIEW, May-June 1944, of an article entitled "Home-Made Devices for Physical Therapy" by 1st Lt. Ila Jane Amrhein, Medical Department Physical Therapist at the Station Hospital, Aberdeen Proving Grounds, Md.

Army Promotions

The Surgeon General of the Army announces the promotion of the following Medical Department Physical Therapists to the grade of First Lieutenant:

Byrd, Evelyn M., Station Hospital, Mitchell Field, N. Y.
Hopkins, Jessica A., O'Reilly General Hospital, Springfield, Mo.
Moran, Katherine V., Station Hospital, Santa Ana Army Air Base, Calif.
Norris, Louise, Overseas.
Peavy, Naomi C., Overseas.
Peters, Christine E., Fort Geo. E. Wright, Spokane, Wash.
Poulsson, Else, Overseas.
Prescott, Myrtle S., Station Hospital AAC, Nashville, Tenn.
Rosenstein, Lillian L., Bolling Field, Anacostia, D. C.
Scharfenberg, Margaret M., Overseas.
Stuart, Marion F., Station Hospital, Oakland Area, Calif.

Georgia Chapter

The Georgia Chapter of The American Physiotherapy Association met on February 3rd, at Lawson General Hospital, Atlanta. Colonel Earl C. Lowry, Chief of Surgical Service, Lawson General Hospital, welcomed Chapter members and guests from Georgia Warm Springs Foundation, Oliver General Hospital, Augusta, and Atlanta.

In the evening, Colonel Lowry conducted a very interesting tour of the Orthopedic Appliance Shop. Captain Arthur M. Pruce, Chief of Physical Medicine, Lawson General Hospital, gave a lecture on "Should Peripheral Nerve Injuries Be Splinted?" Captain Felie W. Clarke, Chief Physical Therapist, Lawson General Hospital, spoke on "Amputations" and presented slides showing the various stages of conditioning amputees. She also demonstrated exercise apparatus and methods of teaching correct use of a prosthesis. Major Wilson, Chief of Physical Medicine, Oliver General Hospital, Augusta, attended with several members of his staff.

The business meeting was conducted by Miss Lamoille Langworthy, President. During the business session, she read very interesting letters from Lt. Beth Phillips and Lt. Alice Swenson who are stationed in England. Following the business meeting, a lovely dinner was served at the Officers' Club. Approximately thirty-one members and guests were present.

New Members

The following are new members of the American Physiotherapy Association:

Alkins, Carolyn M., 40 Waumauk St., Roxbury, Mass.
Allen, Beatrice, 242 Park Place, Cranbury, N. J.
Barnes, Mary Ruth, 1008 West 19th Ave., Spokane, Wash.
Beery, Miriam A., Fletcher General Hospital, Cambridge, Ohio
Bell, Joan Louise, 1226 Overlook Road, Lakewood, Ohio
Blown, Florence Teresa, John Sealy Hospital, Galveston, Tex.
Cannon, Erma S., 318 West Franklin St., Richmond, Va.
Carlson, Lt. Fern M., Mason General Hospital, Brentwood, L. I., N. Y.
Carman, Adeline Smith, 295 W. 150th St., New York 30, N. Y.
Carroll, Lt. Ann M., Army Medical Center, Washington 12, D. C.
Carroll, Lt. Matilda, Billings General Hospital, Ft. Benj. Harrison, Ind.
Cascadden, Mrs. Olivia, Box 344, Lapel, Ind.
Christian, Marjorie, 4518 Ashland Ave., Norwood 12, Ohio
Colwin, Carol M., 322 West 72nd St., New York, N. Y.
Corry, Jane Vanden Bosch, 2144 E. Edison Road, Tucson, Ariz.
Dee, M. Barbara, Duke University, Durham, N. C.
Doolittle, Marthann, 232 East 79th St., New York 21, N. Y.
Downs, Joan F., Franklin St., Box 387, Vineyard Haven, Mass.
Fouts, Gertrude O., R. D. 2, Willoughby, Ohio
Freelander, Ruth L., 20 Zenith Drive, Worcester 2, Mass.
Giulian, Gertrude M., 4222 North 8th St., Philadelphia 40, Pa.
Graf, Mrs. Rose Gold, 1396 Beach 28 St., Far Rockaway, N. Y.
Griswold, Mildred, 3211 S. W. 10th St., Portland 1, Ore.
Hamlin, Eleanore, McCaw General Hospital, Walla Walla, Wash.
Harrington, Lois E., 15 Chestnut St., Natick, Mass.
Hayward, Louise, 40 Wigglesworth St., Boston, Mass.
Hughes, Jeanne, 2627 North 50th, Lincoln, Nebr.
Huppert, Curtis R., 1272 SCSU, Med. Det., England General Hospital, Atlantic City, N. J.
Jarrell, Elbert, Y.M.C.A., Franklin and Cathedral Sts., Baltimore, Md.
Johnson, Elvy Inez, 1641 Hillcrest, Cleveland Heights, Ohio
Karis, Virginia, 6218 Newell, Huntington Park, Calif.
Loomis, Eleanor, Wynnewood Park Apts., Wynnewood, Pa.
Mason, Lt. Joan, Lawson General Hospital, Atlanta, Ga.
Maw, Thelma B., 1421½ Bates Ave., Los Angeles 27, Calif.
Miller, Dorothy E., Hammond Gen. Hospital, Modesto, Calif.
Moore, Irma Elizabeth, 768 Colorado Blvd., Denver 7, Colo.
Moriarty, Margaret C., Kennedy General Hospital, Memphis, Tenn.
Murrell, Millicent J., Foster General Hospital, Jackson, Miss.
Norman, Hubert De Wayne, Marmet Hospital, Marmet, W. Va.
Olmsted, Mrs. Barbara A., 75 Brace Road, West Hartford, Conn.
Oscarson, Ruby, 24 E. Columbia Ave., Palisades Park, N. J.
Pappas, Nyla M., 754 E. Monterey Ave., Pomona, Calif.
Paulick, Lt. Clara E., Valley Forge Gen. Hospital, Valley Forge, Pa.
Penney, Bette, 14820 Friar St., Van Nuys, Calif.
Perkins, Barbara S., 602 Stonewall Drive, Charleston, W. Va.
Pingle, Sister Mary Imelda S.S.M., Firmin Desloge Hospital, 1325 S. Grand Ave., St. Louis, Mo.
Rathgeber, Barbara, 69 Wolcott Road, Chestnut Hill 67, Mass.
Reymond, Ida, 149 Woodtick Road, Waterbury 67, Conn.
Robinson, Mildred Veronica, Station Hospital, Camp Callan, Calif.
Rounds, Ellen A., 617 Franklin St., Watertown, N. Y.
Schneiderjon, Lt. Ruth, Station Hospital, Camp Carson, Colo.
Shiel, Grace M., 301 East 38th St., New York, N. Y.
Sowa, Anna, England General Hospital, Atlantic City, N. J.
Stone, Mrs. Anne Peters, 502 Pearl St., Laguna Beach, Calif.
Van Horn, Marjorie, 1504 Markley St., Norristown, Pa.
Voorhies, Ferieda R., Greystone Park, N. Y.
Welling, Lt. Maude, Bushnell General Hospital, Brigham City, Utah

Recent Graduates of Fitzsimons General Hospital, Denver, Colo.:

Anderson, Eda E.
Andresen, Edna B.
Barnes, Leona Louise
Bates, Mrs. John W.
Carstensen, Mae E.
Cooper, Helen C.
Doherty, Mary K.
Durbahn, Meredith
Fylken, Eva Jean
Garrett, Pattie E.
Gray, Florence C.
LaBarr, Mabel F.
O'Brien, Frances B.
Meermans, Elizabeth G.
Pontius, Leda C.
Smith, Adrienne Phillips
Solberg, Beatrice Irma
Stoker, Melita
Taylor, Edith C.
Wright, Lydia M.
Zeigler, Annabel W.

Recent Graduates of Walter Reed General Hospital, Washington, D. C.:

Boynton, Dorothy A.
Forney, Helen F.
Foust, Bettye J.
Fread, Pearl
Gillanders, Dorothy F.
Heath, Harriet E.
Heath, Ruth
Hoffman, Frances P.
Isbell, Dorothy M.
Kelly, Pauline V.
Mayforth, Mary M.
Morrow, Martha C.
Nichols, Dorothy E.
Nothstein, Betty L.
Priebe, Margaret D.
Wood, Evelyn M.
Yeakle, Mary M.

Recent Graduates of Harvard Medical School, Boston, Mass.:

Blair, Carolyn C.
Ekstrom, Frances C.
Hall, Flora
Holanetz, Matilda Filomena
McKinnon, Ann S.
McLenahan, Marica G.
Peacock, Inez W.
Perry, Mrs. Elizabeth H.
Sirman, Lois
Smith, Shirlie Louise
Sorg, Paula L.
Stewart, Mary
Thomas, Mrs. Willie Lee

Recent Graduates of Brooke General Hospital, Ft. Sam Houston, Tex.:

Austin, Florence M.
Blair, Verona J.
Cohen, Belle K.
Jones, Lucy E.
Lawrence, Roberta R.
Lissy, Romaldo L. F.
Cole, Edith
Erwin, Maud M.
Forbes, Isabel McC.
Grombacher, Elizabeth A.
Hoffman, Florence K.
Ingenhutt, Catherine W.
Matsiselts, Marria
Redden, Mary G.
Rezabek, Eleanor J.
Soden, Dorothy A.
Wheatley, Alice Adell

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Poliomyelitis Treated by the Kenny Method: End Result Study of 29 Cases. A. D. GUREWITSCH and W. A. L. THOMPSON. Arch. P. T., Dec. 1944.

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Common Mistakes in the Handling of Patients with Arthritis and Allied Conditions. B. I. COMROE. J.A.M.A., Feb. 17, 1945.

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The Significance of Rheumatic Fever to the Community. HUGH MCCULLOCK. Minnesota Med., Dec. 1944.

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A Study of Hallux Valgus: Its Cause and Operative Management, Parts I and II. ROBERT T. MCELVENNY. Quarterly Bull. Northwestern Univ. Med. School, Winter Quarter, 1944.

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Underwater Treatment Tank. ARTHUR M. PRUCE. Arch. Phys. Med., Jan. 1945.

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Miscellaneous

Changes in Muscle Proteins During Muscular Atrophy. ERNST FISCHER and VIRGINIA W. RAMSEY. Arch. P .T., Dec. 1944.

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ABSTRACTS

John S. Coulter, M.D.

Recent Advances in the Treatment of Peripheral Vascular Diseases

Gordon E. Jones, M.D., Seattle, Washington. In WESTERN JOURNAL OF SURGERY, OBSTETRICS AND GYNECOLOGY, 52:12:497, December 1944.

Physical Measures. Successful efforts to increase peripheral blood flow by physical measures have been limited to the expedient of intermittent venous occulsion. This simple mechanical phenomenon can be achieved by means of Buerger's passive vascular exercises, a Burdick intermittent venous occlusion apparatus, or by an ordinary blood pressure cuff and an attendant taught to operate it properly. The purpose of any of these methods would be to bring about an intermittent and rhythmic venous distension with alternate periods for emptying the vascular bed. This therapeutic measure is based on sound experimental data and, more important, has been found to work repeatedly in actual clinical trial. The conclusions of Friedland and Wilkins, based on experimental work which failed to demonstrate an increase in blood flow during venous occlusion, are not necessarily applicable to the effects of intermittent venous occlusion on peripheral blood flow. Their findings are at variance with the work of other investigators.

Refrigeration Anesthesia. Refrigeration anesthesia for amputation has been unreservedly advocated by Allen and others. The technic, as described by several authors is essentially the same in most details. Proponents of the method state that this type of anesthesia lowers the mortality, reduces shock, and makes surgery possible in some cases that might otherwise be hopeless. They all agree that one disadvantage is a delayed healing time.

The refrigeration technic, when properly performed with utmost attention to detail, gives satisfactory anesthesia for almost any type of amputation. The method, however, is time consuming and is cumbersome and messy. Strict aseptic technic is difficult to maintain. The principle of using a tourniquet proximal to the site of amputation in a patient with poor peripheral circulation is a poor one. Crossman's mortality rate of 15.5 per cent in 45 patients anesthetized with this technic is not impressive. The method will be attractive to those who have had anesthesia difficulties but it does not appeal to those who have performed amputations simply and safely under a very low unilateral spinal anesthesia such as can be obtained with as little as 50 mg. of novocain.

Refrigeration anesthesia is a valuable adjunct, however, in certain types of cases. Cooling has the great advantage of arresting the metabolism of both tissue and bacteria, and can therefore be used to "freeze" a septic or gangrenous process while a very ill patient such as a diabetic in acidosis can be prepared for surgery. Crossman reports the case of a poor risk patient with a popliteal embolus in whom the extremity was refrigerated for 16 days before gangrene developed. The method also is of value in the handling of a mangled extremity when the patient needs to be treated for shock.

Changes in Muscle Proteins During Muscular Atrophy

Ernst Fischer, M.D., and Virginia W. Ramsey, B.S. Department of Physical Medicine, Medical College of Virginia, Richmond, Virginia. In ARCHIVES OF PHYSICAL THERAPY, 25:12:709, December 1944.

Any modern explanation of the ultimate process by which chemical energy is transformed into mechanical energy during muscular contraction considers myosin, which is the main protein of muscles, as the substrate of the contractile mechanism. Contraction probably is caused by a rapid transient change of the molecular configuration and of the micellar arrangement of the myosin. These changes represent variations in the colloidal state of the myosin, and indicate that in normal muscle the colloidal state of the myosin must be a rather labile one. Despite the fact that myosin is the substrate of the contractile mechanism, little is known about the changes in myosin during muscular atrophy. From indirect evidence it seems likely that during atrophy due to upper neuron lesions or to tenotomy no changes in the relative myosin content occur.

Summary

During muscular atrophy due to immobilization or due to denervation changes in the physicochemical state of the protein myosin, the subtrate of the contractile process can be detected by extraction and reprecipitation of the myosin at various hydrogen ion concentrations. The main changes observed are a diminished solubility of the myosin, a loss of its uniform iso-electric point and a tendency to form much denser precipitates. These changes can be retarded in denervation atrophy and their recovery can be speeded up after immobilization atrophy by appropriate electrical treatment or by massage.

Primary Tuberculosis: Effect of Unrestricted Activity on Prognosis

Milton I. Levine, M.D., New York. In AMERICAN JOURNAL OF DISEASES OF CHILDREN, 68:6:389, December 1944.

Within the past few years preventoriums and treatment in the open air for children who react positively to the tuberculin test have for the most part been discontinued, for it is now generally accepted that a positive reaction to tuberculin is by itself no indication for added care except that occasional roentgenograms should be made. It has also been recognized that a child with only a positive reaction to tuberculin is no menace to other children.

On the other hand, the treatment of a patient with tuberculous infiltration of the parenchyma of the lungs during the active phase of the primary complex as evidenced by roentgenograms is still subject to dispute. Many physicians continue to advise rest in bed during the infiltrative phase of the primary complex in the hope that recovery will be hastened and complications avoided. Other physicians feel that the course of a primary tuberculous infection and its subsequent outcome are not modified by treatment.

Summary

The indications for treatment and the methods of treatment of the primary complex of tuberculosis are still subjects of considerable controversy.

There was no evidence that rest in bed influenced in any way the course of the primary complex or reduced the incidence of complications and no evidence that lack of rest in bed was in any way detrimental.

In my opinion, rest in bed during a primary infection with tuberculosis should be limited only to the period of elevation of temperature, as would be advised in the treatment of any febrile condition during childhood.

Physical Medicine in an Evacuation Hospital

Lieut. Colonel Willis M. Weeden, Medical Corps, A.U.S., and Captain Hymen D. Stein, Medical Corps, A.U.S. In THE BULLETIN OF THE U. S. ARMY MEDICAL DEPARTMENT, 84:89, January 1945.

We wish to describe the department of physical medicine established in an evacuation hospital in the jungles of India, including the equipment and its use in the restoration of normal function of the body as a whole.

Sections

The several sections in our department were (1) heat and massage, (2) hydrotherapy, and (3) supervised exercise, a section that has proved especially beneficial. It is easy to organize with pulleys, rope, and weights—appliances which will exercise particular groups of muscles. The important factor, however, is actual supervision of these exercises. Our patients return every afternoon for therapeutic supervised muscle training, which we believe has hastened the return of function of many extremities and lessened the period in hospital of many patients. It is important to return the soldier to duty as soon as possible, not only because of his military value but for his own well-being and morale.

Conclusions

1. A department of physical therapy is essential in any medical installation treating patients for more than primary treatment.
2. A physical therapy department can be organized and equipment built from material obtainable in any camp.
3. Personnel can be trained by any medical officer interested in this type of work.
4. Novocain injections may be of value locally in treatment of some of these cases.

Physical Rehabilitation of Veterans

Charles R. Brooke, M.D., Lt. Colonel, M.C., A.U.S.; Chief, Physical Medicine and Medical Rehabilitation, Veterans Administration. In MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA, 14:1:7, January 1945.

Hospital and clinic treatment is supplemented by physical therapy, occupational therapy, recreational therapy, physical exercises, entertainment and diversional activities, educational and library activities, all combined to promote and hasten full physical rehabilitation.

The physical medicine departments now in operation in all our facilities vary in size and equipment depending on the bed capacity and types of patients. In our general medical and surgical facilities, the set-up consists of a large treatment room which is well equipped with electrotherapy apparatus, lamps for thermal and light therapy, massage and exercise. Additional room is provided for actinotherapy (ultraviolet rays), local and general exposures; and other rooms are set up for suction and pressure therapy and machines for electrodiagnostic tests and other specialized treatments.

In the neuropsychiatric facilities, the physical medicine departments are the same as in the general medical and surgical facilities except that hydrotherapy is stressed and is administered on a much larger scale.

Muscle Injury in Industry; The Importance of Physical Medicine

Sir Morton Smart, K.C.V.O., D.S.O., M.D. Manipulative Surgeon to H. M. the King; Consultant in Physical Medicine to the Royal Air Force. In BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 8:1:8, January-February 1945.

In the post-war planning of the medical treatment of the industrial worker there is no field of activity with greater scope for improvement in the technic of treatment than that of manipulative surgery and of methods designed to maintain the physiological activity of muscles at its maximum efficiency.

Joint disability and much crippling are the inevitable result of adhesions and of wasting of muscles, which are themselves the direct consequence of inflammation in joints from injury and other causes. It is not too much to say that if more regard were paid to the prevention of adhesions and of muscle wasting after even minor injuries, in relation to treatment—particularly to treatment in the early stages—much pain and crippling would be prevented or at least mitigated.

Adhesion formation and muscular wasting, which are so constantly a serious sequel to strains and sprains of all degrees of severity, can be reduced to a minimum if such patients are treated with the end in view of maintaining the physiological activity of the muscles at its maximum during the process of tissue repair. This can be accomplished with certainty by means of a special technic of graduated muscular contractions initiated as soon after the injury as possible. Such treatment has passed from the transitional stage and has a well defined physiological basis. For its efficient administration it requires a sound knowledge of the fundamental principles of muscle action, whether voluntary or initiated by electrical stimulation.

Early treatment of all diseases and injuries, by whatever method adopted, must be conceded to be of immense importance, but in no class of case is this so true as in those which would benefit from treatment designed to prevent adhesions and the loss of muscle function.

It is a remarkable fact—and one that does not appear to be stressed as it should be—that many joints which are functionally inefficient for a long time after even a minor injury are proved, when competently examined, to owe their disability to simple mechanical instability caused by atonic and wasted muscles and periarticular adhesions. When such muscles are restored to full function by treatment with graduated contractions and the adhesions are freed by manipulation, all crippling symptoms rapidly disappear.

Sprains and fracture-sprains of the ankle joint are notoriously resistant to quick recovery and it is well known how often they result in long periods of disability. Disability is caused by persistent edema, pain on use, limitation of movement owing to adhesions and a general feeling of stiffness, particularly on commencement of movements after the joint has been at rest. I contend that if such a joint is skillfully treated as soon after an injury as possible by the technic of graduated muscular contractions, such sequelae should never occur, and I emphasize again that the secret of success is the correct application of the method as early after injury as possible.

It can hardly be denied by those in a position to judge that by far the most of what may be described as minor injuries are most inadequately treated, perhaps mainly because of the lack of proper facilities. In consequence, what is generally considered to be a slight injury at the time of its occurrence ends in quite unnecessary pain and crippling and in interference with efficient work for long periods. Neglect of early treatment leads to serious loss of man-hours in the industrial world, because in the later stages, when more serious tissue changes have taken place, such as atonicity and wasting of muscles and adhesions, treatment in order to restore function involves much greater loss of time and absence from work.

If we advocate the treatment of muscles by an electrical method, which produces contractions that are exactly controlled in (1) the degree of each contraction, (2) the rate of contractions in a given time and (3) the completeness of relaxation before the next contraction, it is with no desire to suggest such procedure as a substitute for voluntary movements. The stage at which the patient should participate by voluntary action is well recognized, is encouraged when the right moment arrives and it is then carried on pari passu with the treatment.

Trench Foot: Report of 351 Cases

Major Joseph C. Edwards, M.C., A.U.S., Captain Morris A. Shapiro, M.C., A.U.S., and Captain Jennings B. Ruffin, M.C., A.U.S. In BULLETIN OF THE U. S. ARMY MEDICAL DEPARTMENT, 83:63, December 1944.

The first principle in the treatment of trench foot is to rest in a cool place, keeping the body comfortably warm and clean. This is done by daily washing with 70 F. soapy water, gentle drying of the feet, and either cooling the surface of the feet by air currents from a fan or by exposing them to room temperature not exceeding 70 F. This and absolute bed rest promote vasoconstriction and decrease local metabolic requirements. The body should be warm with enough blankets to make the patient comfortable. As soon as the acute pain has passed, the patient is started on passive vascular exercises. He elevates his feet at an angle of 45 degrees on a board or chair for two and later five minutes; keeps legs horizontal for five minutes; then sits with his feet over the edge of the bed for two and later three minutes, followed by resumption of the horizontal state. This is repeated three to four times daily during the next week or so while the patient is at bed rest. This, with calisthenics in bed each morning conducted by the ward master, helps keep these patients in good physical condition. Cool water soaks and whirlpool baths at 70 F. for twenty to thirty minutes daily help temporarily. Whether or not they shorten the recovery period was not established. Not all patients could stand the cold water. Some found it relieved the aches and pains during the time the feet were in the water. Those with painful, swollen, warm feet usually did obtain relief. It is used empirically and those who obtained relief were allowed to continue the treatment. Cooling the feet at bedtime would enable many to get to sleep without sedatives or analgesics.

All patients were reassured as to their eventual recovery. Lectures were given on the proper care of the feet. Undue exposure when not absolutely necessary was stressed. As soon as they were able, they were out of bed part of each day. From two to seven days later, depending on the severity of the condition, they were allowed to go to the mess hall outside the ward. It is important to realize that most of these patients, on walking, have aches and pains in the muscles and metatarsophalangeal joints for several weeks after the feet appear normal. After they cease to have pain during

ordinary walking, many overcome slight aches after hikes by persisting in walking even though the feet ache for the first few days.

Occupational therapy, reading, writing, games, and entertainment for bed patients, and outdoor exercise for the ambulatory, are essential. When they are safely ambulatory, their attendance is required at daily organized hikes, which are gradually increased in length compatible with the patients' condition. As soon as they are able to walk 3 to 5 miles without undue trouble, they are ready for duty.

Manual of Graduate Training in Surgery

In BULLETIN OF THE AMERICAN COLLEGE OF SURGEONS; Approval Number 29:4:433, December 1944.

By action of the Board of Regents at the annual meeting in 1937, a Committee on Graduate Training in Surgery was established for the purpose of investigating, analyzing, and evaluating the opportunities for the training of surgeons in hospitals of the United States and Canada.

Graduate training in surgery requires a carefully directed and supervised apprenticeship in which the resident staff actually participates in surgical work.

Duration and Objective. Graduate training in general surgery and the surgical specialties shall be of sufficient duration and educational content to enable the young surgeon, upon completion of such training, to begin the practice of surgery in a scientific manner. An acceptable program requires a minimum of two and preferably three or more years.

Diagnostic and Therapeutic Departments. It is assumed that any hospital conducting or contemplating a program of graduate training in general surgery or the surgical specialties has a complete clinical and x-ray department organized according to the Minimum Standard for Hospitals.

There should be a complete range of facilities covering all phases of the necessary diagnostic and therapeutic work in radiology and clinical pathology. Additional diagnostic and therapeutic facilities vary in completely equipped hospitals, but the minimum to be reasonably expected includes departments for electrocardiography, basal metabolism, physical therapy, oxygen therapy and such other adjunct services as are necessary to elucidate or confirm the diagnosis and carry out scientific treatment.

Sacral Fractures and Injuries to the Cauda Equina

Major J. Grant Bonnin, R.A.M.C. Recently Orthopedic Surgeon, Emergency Medical Services, England. In JOURNAL OF BONE AND JOINT SURGERY, 27:1:119, January 1945.

Fracture of the sacrum is most common in association with fracture of the innominate bone, a sufficient clue to its most common method of production.

Treatment

The sacrum can be influenced only through that half of the pelvis attached to the fractured portion. Every endeavor must be made to reduce the pelvis satisfactorily by the use of the appropriate method. A sling, counterbalancing the patient's weight, together with traction on the lower end of the femur, will generally be found the most efficacious. Once the pelvic displacement is reduced, the sacrum must be left to itself. In some cases—for example, those with only minor compression of the sacrum—no pelvic reduction is necessary; such patients should be treated as soon as possible by active exercises in bed, and by such physical therapy aids as may facilitate the active use of the muscles. In no case is the muscle paralysis so complete that deformities will arise if the patient is given exercises. Where paralysis exists, its incomplete nature is suitably dealt with by exercises against graduated resistance, together with a little radiant heat and massage. As soon as the pelvis is consolidated, usually at the end of eight weeks, walking is encouraged.

Prognosis

In the lesser degrees of injury, the prognosis is good, complete recovery occurring at the end of a year, although there may be weakness in the leg and some slight permanent muscle wasting. In the severe cases, the prognosis is not good. Complete recovery of the power in the calf does not occur, and the limb is permanently weaker than its fellow.

Reconditioning in Civilian Hospitals

Henry B. Gwynn, M.D., F.A.C.P. Major, Medical Corps, Reconditioning Consultants Division, Office of The Surgeon General of the United States Army. In MEDICAL ANNALS OF THE DISTRICT OF COLUMBIA, 14:1:16, January 1945.

Physical medicine is only beginning to come into its own. The Baruch Committee on Physical Medicine and other such groups are stimulating research and correlating scientific knowledge on this subject in order to get it firmly established as a fundamental tool of medical therapy. Too often physical medicine is looked upon as merely an orthopedic therapy aid and its role in other surgical, medical and mental conditions completely overlooked. This condition will be corrected only by improvement of instruction in physical medicine in medical schools. It suffices to state here that physical medicine is a most important section of reconditioning and a large percentage of patients in a general hospital would benefit by scientifically prescribed massage and the use of ultraviolet rays, infra-red rays, diathermy, whirlpool baths, faradic and galvanic stimulation, and other such measures. A most important feature of a physical therapy department should be the remedial gymnasium equipped with medicine balls, skipping ropes, weights, pulleys, shoulder wheels, horizontal ladders, rowing machines, Indian clubs and stall bars.

Occupational therapy has long been used in mental hospitals, but few general hospitals have established departments.

The Reconditioning Program at Moore General Hospital

Major F. Piazza, M.C., A.U.S. In THE MILITARY SURGEON, 96:1:84, January 1945.

In conclusion, then, the objective of reconditioning is to assist the professional services in returning as many soldiers as possible to military duty in the highest state of efficiency. For those whose disabilities preclude further military service, the program is planned to return these men to civilian life fully prepared physically and equally as important, mentally, both in attitude and background education, for their role as honored citizens of the democracy they sacrificed to preserve. To accomplish this mission a carefully balanced training program, supported by an educational curriculum which will aid the soldier in better understanding why he trained and fought, and prepare him to continue the battle for democracy, either as a soldier or citizen, is being closely integrated with the finest professional medical care that can be provided.

Advance in the Prevention and Treatment of Poliomyelitis

James L. Wilson, M.D., New York, N. Y. In THE JOURNAL OF THE MICHIGAN STATE MEDICAL SOCIETY, 44:1:70, January 1945.

I have chosen to twist the title assigned to me to allow me to confine my discussion of this most interesting and complex disease to a consideration of the therapy of poliomyelitis in the light of the advances in our theoretical knowledge of the disease in the last few years. No research on my part justifies my assuming to address you on this subject, and I can only claim a great and constant interest as a close clinical observer of the disease.

I will start with a summary which may seem most pessimistic and depressing and quite lacking in matter for headlines. Although a great deal that is new has recently been learned which sooner or later will inevitably lead to our ability to control this dreaded disease, it seems to me that at present what we know makes us have less confidence in ourselves and feel less sure of being able to do anything to control the spread of the disease or influence its course than we felt five or ten years ago.

Recently in the various attempts to rationalize the so-called Kenny treatment, belief has been expressed that there is no true paralysis in poliomyelitis but that the resulting weakness was as I would express it a "pseudo-paralysis," due to some mental inhibitions or "alienation" derived from opposing tender muscles. I should like to emphasize the fact that the only pathological change that we know of that is permanent and that does not disappear after recovery from the acute stage of the disease is a loss of those anterior horn cells and we should tie to this and not be misled by physiological sophistries.

There is now much evidence to convince us that the primary pathology is in the motor cells of the anterior horns and that all the other changes are secondary. Some very beautiful experimental work in monkeys has been carried out which I cannot take time to review in detail but which demonstrated that the virus first damaged the anterior horn cells and that the interstitial changes were secondary and did not occur in spite of inoculation with potent virus in sections of the brain or the cord where the large motor cells had been destroyed previously. All this makes us feel quite surely that these many attempts to increase the blood supply to the great motor cells were based upon a misconception of the pathogenesis and were quite futile.

We come to a discussion of the Kenny phenomenon which is the latest attempt at therapy and of them all the most popularized by the lay press. It is indeed a phenomenon, and is of great interest in illustrating how we as a nation think and act as well as in its relation to this important disease. First, it demonstrates a commendable open-mindedness that physicians would seriously consider the claims of a nurse completely untrained in medicine or in basic science and from the time she first came to our country most contentious, intolerant of difference of opinion, and filled with a belligerent attitude towards the medical profession. Second, it illustrates what to me at least seems a very unfortunate lack of critical judgment in many physicians, a lack of knowledge of how to evaluate a therapeutic experiment, a lack of knowledge of the natural course of poliomyelitis and a reprehensible tendency, of which, however, physicians are not fully responsible, toward allowing premature publicity. It is hard to resist the fundamental American tendency to ride on the "band wagon," in medicine as in other fields.

I think that epidemics of these last two years have made it very clear that again our people have suffered great disappointment in a treatment at first highly praised. We should look back with criticism of ourselves as physicians for not having demanded that any experimental therapeutic attempt be properly recorded and quantitated and that proper control cases be chosen for comparison, and also with some humility that the challenge of this nurse has been necessary to stimulate long-needed research in muscle function and a fresh evaluation of our own intrenched orthopedic habits by more critical clinical studies.

Traumatic Neurocirculatory Disorders of the Extremities

J. Dewey Bisgard, M.D., Omaha, Nebraska. In THE AMERICAN JOURNAL OF SURGERY, 27:2:210, February 1945.

In both military and civilian practice there are encountered certain definite clinical entities which from the lack of definitive understanding have been designated post-traumatic neurovascular lesions of the extremities.

Sudeck's bone atrophy is seen not infrequently in association with fractures about the wrist joint but may follow relatively trivial and minor injuries.

The treatment of post-traumatic neurovascular lesions varies with the individual case. The acute vascular contractures with impending gangrene are emergencies, demanding immediate efforts to relieve vascular spasm by means of novocainization of the regional sympathetic ganglia or periarterial sympathectomy. Heat should not be applied to these extremities.

Before treatment is undertaken in chronic cases a careful neurological and psychiatric study should be made in an effort to exclude compensation neuroses and hysteria. All doubtful cases, and there are many, should be looked upon as true causalgias and treated accordingly until a diagnostic therapeutic trial has proved them otherwise. To dismiss them simply as psychogenic does a great injustice to these sufferers.

Minor causalgias and particularly the bone atrophy of Sudeck following fractures or other injuries may be prevented by the early institution of physical therapy and once developed this form of therapy probably shortens the otherwise long period of recovery.

Because the patients in the more severe cases are likely to become addicted to morphine, every effort should be made to obtain early relief of pain.

Physical Therapists and "Rubbers"

From "The Lancet," Aug. 12, 1944.

Sir: This letter is dictated by a debt which I have owed for over twenty years to an elite of physical therapists. Misapprehension of the part these persons play, though natural to laymen in and out of Parliament, is less amusing or excusable when it affects ourselves. Yet I have found that quick informed appreciation of their many-sided work is limited—like speed in streams—to relatively narrow channels. Only a fractional percentage of surgeons and physicians could fail, we might suppose, to be apprised; but everywhere one seems to meet this fractional per cent.

I thus was fortunate of late in finding someone with a view on this as welcome as the sight of an oasis. Sir Thomas Carey Evans, by his keen support, concurred in making possible that every patient in my wards should

have the earliest chance of duly graded exercise; exercise in breathing before and after operation, exercise of limbs, and rehabilitation. So that recumbency itself became a sound investment. One patient, for example, elderly, frail and "difficult," with a tuberculous right hip in course of ankylosis after extra-articular joint fixation, spent 17 weeks in bed awaiting union of the graft. The man was meanwhile taught, by exercise against a spring resistance, to educate the muscles he would later use with crutches. After these many weeks he rose and walked on crutches easily, at once. This typical success was not a mere effect of skill applied to live anatomy, but also the result of patience, sympathy, and sound psychology; the case had needed practically no massage—that old and priceless remedy, debased by gross employment as a panacea. Treatment of this kind, spread throughout a ward, encourages and interests patients, and fosters too a friendly rivalry in getting well. Taking a lower point of view, the therapy saves beds.

It will be seen that I have barely touched on one facet of a large specialty; but this fact, which should by now be most familiar—apart from aspects that concern the practiced use of heat and light and electricity—makes it the more remarkable that qualified opinion in the Commons this July should fail to challenge "rubber" as equivalent for "physical therapist." There is, of course, a hierarchy in the profession; one knows that certain so-called physical therapists are quite content merely to rub—too often on our own instructions. Indeed, I was informed by one of these practitioners that no advance had been observed in their domain during the last 25 years—a thing which, if approximately true of any skilled profession, would place it on a level with the oldest. But nothing here is further from the truth; advance among this hierarchy has been remarkable and swift, and it should be our privilege to use and implement their help as indispensable and honored partisans of medicine; the best of these (like all the best) have much to learn—and teach. So it is sad to come upon a certain frame of mind suggestive of contempt, however unintentional, which foils cooperation and confines itself to orders ("Massage for painful this or that") and nothing more; no contact, no chance to get a glimpse of the unique which lurks in every single case. Merely a chit from doctor to subordinate.

But casting off the lumber of the term "massage" (as we did long ago in Cairo when we refused to let this often quite decerebrate activity appear in primis on the title of the new department) such casting off is not enough. Nor does assumption of the name "physical therapy" suffice; not all immediately concerned have caught the spirit of the thing itself. The hierarchy might thus be moved to the appointment of a body—like that in the United States for schools of medicine—to test, assess, and level UP the practice of their specialty, remembering at times the words which Cassius used to Brutus on the destiny of man, and turning them (as Barrie did) to either sex: "The fault, dear Brutus, is not in our stars, but in ourselves, that we are underlings."

Hampstead, N. W. 3. Arnold K. Henry.

Common Mistakes in Handling of Patients With Arthritis and Allied Conditions

Bernard I. Comroe, M.D., Philadelphia. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 127:7:394, February 17, 1945.

Mistakes in the handling of arthritic patients often lead to unnecessary deformities and crippling. In some instances omission of proper therapy delays early recovery.

The sedimentation rate is not infallible and, if the results of this test are not in agreement with the diagnosis, the test should be repeated.

A normal sedimentation rate does not rule out organic disease.

It is a mistake to tell the patient that the joint is normal because the x-ray examinations are negative.

X-ray evidence of subdeltoid bursitis is present in not more than 50 per cent of cases; negative roentgenograms do not rule out subdeltoid bursitis.

Between 95 and 98 per cent of all gout occurs in males.

Other diseases may cause pains and aches in various joints or muscles. Angina pectoris, parkinsonism, brucellosis, trichinosis, hysteria, hypothyroidism, scleroderma, lupus erythematosus, cancer and many other nonarthritic syndromes.

Patients with coronary artery occlusion may develop a painful shoulder after a few days or weeks and in some instances may have aches and pains in the hands.

Pain radiating down the legs is frequently diagnosed as sciatica. Sciatica is not a disease but is merely a symptom.

It is also a mistake to omit roentgen examinations of the low back in individuals with persisting low back pain.

The patient with rheumatoid arthritis should not be told to go to bed for prolonged periods without proper exercise and massage.

A member of the patient's family should be trained as well as possible to give massage daily in addition to periodic massage by a trained masseuse.

One must carefully balance the amount of rest and exercise in an individual.

Many mistakes are made in the use of physical therapy. Physical therapy alone will not cure most cases of arthritis. On the other hand, physical therapy should never be omitted in the treatment of average arthritic patients, particularly those with subacute or chronic forms of arthritis.

Joints that are acutely inflamed should not be manipulated. These should be kept at rest as much as possible.

Measurement of Muscle Strength

Henry Milch, M.D., New York, N. Y. In JOURNAL OF BONE AND JOINT SURGERY, 27:1:141, January 1945.

The inability accurately to control or positively to determine all of these factors markedly narrows the field of application of the usual type of muscle-strength determinations. While the possibility exists that, in the future, measurements made by the use of some other principle may be devised, the methods at present employed must be accepted merely as more or less accurate clinical estimates of muscle strength. In the respect that they tend to minimize the subjective character of present methods, they represent some advance and may serve for purposes of comparison. Insofar as the actual measurement of individual muscle strength is concerned, the hope placed in ergographic determinations appears to be entirely chimerical. The pseudo-scientific enumeration of the work capacity of a long list of individual muscles as a basis for surgical intervention is misleading and should be discontinued. At most, muscle charts should indicate the relative strength of flexion, extension, adduction, abduction, or rotation possible at the joint under consideration. They can never be elaborated so as to replace clinical judgment, which must finally be brought to the analysis of the surgical problem.

Reconditioning for the War Wounded: The United States Army Service Forces' Program

Colonel Augustus Thorndike, M.C., A.U.S. In THE AMERICAN JOURNAL OF SURGERY, 27:2:394, February 1945.

The physical training program provided for the trainees includes gymnastics, combatives, obstacle course running, games, calisthenics, swimming and marches up to fifteen miles.

Educational reconditioning for the trainee is limited to two hours per day of instruction in subjects which actually constitute a refresher course in basic military training.

The occupational therapy prescribed for the trainee consists of useful activities such as painting, plumbing, gardening, carpentry and the like—work therapy for the benefit of the hospital.

Arthritis: Plans of Therapy

Charles P. Wilson, M.D., Portland, Ore. In NORTHWEST MEDICINE, 44:2:54, February 1945.

Traumatic Arthritis and Osteoarthritis. A major therapeutic principle is to get these patients to stop irritating the injured joints. They may have to give up the type of work they are doing but before this I try to get them to stop massaging the joints or working them "to keep them limber." Also I try to get them to stop using the joints except at their work, prohibit gardening, sewing, knitting, and always give them something to rub on them.

I have condemned thoughtless removal of hypothetical foci of infections by not mentioning the subject before this and failure to elaborate on its merits or demerits tells you what I think of wholesale slaughter of teeth, etc. The same statement applies to the "alphabet of treatment"—venoms, sulfur, iodine and so on ad infinitum.

Lastly, I have one more plan of therapy for rheumatoid arthritis. Heat by any means may be wise or unwise. Massage, passive and active exercise and hydrotherapy have their proper places. Joint positioning to prevent subluxations, deflections and hyperextensions of damaged joints is vital. Homemade splints, metal splints or plaster shells are to be used with thoughtful consideration of the desired and often predictable end in mind. Spa treatment has its usefulness at the proper time, chiefly during the rehabilitation stage.

The Conservative Treatment of Thrombo-Angiitis Obliterans and Arteriosclerosis

Paul S. Lowenstein, M.D., St. Louis, Missouri. In SOUTHERN MEDICAL JOURNAL, 38:1:48, January 1945.

Rest.—The fundamental importance of adequate rest is seldom more exemplified than in the treatment of occlusive vascular disease. Rest may vary from partial restriction of activity to the complete stay in bed required in the presence of active inflammatory processes or the severe, incapacitating pain of incipient gangrene.

The position of the limb during this period must also be emphasized. In general, it should be such that the arterial flow is aided, but the venous and lymphatic returns are not impeded.

Of more recent development is the intermittent venous occlusion (rhythmic constrictor); it possesses certain unquestionable advantages. If the pressure in the cuff is kept well below the diastolic pressure, pain is rarely produced in properly selected cases. The cuff is easily adjusted and the treatment may be taken at home which renders it more popular with the average patient.

Changes of Weight and Neuromuscular Transmission in Muscles of Immobilized Joints

P. Thomsen and J. V. Luco, Department of Pharmacology and Biological Chemistry, Catholic University of Chile. In JOURNAL OF NEUROPHYSIOLOGY, 7:4:251, July 1944.

Thomsen, Altamirano and Luco demonstrated that synaptic changes occur in a muscle whose tendon has been cut 3 to 15 days previously, and suggested the possibility that section of the tendon would result in a great exaggeration of the postural reflexes, since some of the muscles pulling on the joint now lack antagonists. More recently, it has been found that these synaptic changes disappear when the tendon spontaneously regrows, reestablishing the equilibrium at the joint despite the persistence of muscular atrophy produced by tenotomy.

In order to determine the effect of position of the limb and of stretch of the muscle on neuromuscular transmission, studies were made in animals in which the tibio-tarsal joint had been immobilized by a plaster cast in one of three positions, namely, hyperflexion, hyperextension and intermediate. The responses of the soleus muscle to different frequencies of stimulation were recorded, and the sensitivity of this muscle and of the tibialis anticus to curare was determined. In each experiment the homologous muscle of the opposite leg was used as a control. Hyperflexion produced maximal stretch of the soleus and maximal shortening of the tibialis, whereas hyperextension produced the opposite. In addition to the neuromuscular transmission, the weight of the two muscles, thus exposed to high or low tension, was studied.

Summary

1. The influence of fixation of the tibio-tarsal joint on the neuromuscular synapse and the weight of the soleus and tibialis anticus muscles was studied in cats anesthetized with Nembutal. The joint was fixed in hyperflexion, hyperextension and intermediate between these two.

2. After immobilization in these 3 positions, these muscles show the same changes in neuromuscular transmission as are found in tenotomized muscles. At high frequencies of stimulation there was a greater development of the third stage of neuromuscular fatigue in relation to the first stage than occurred in the control muscles.

3. The immobilized muscles resemble tenotomized muscles also in being less sensitive to curare.

4. Fixation in hyperflexion for up to 14 days causes an increase in the weight of the soleus and a decrease in the weight of the tibialis.

5. Conversely, fixation in hyperextension causes a decrease in the weight of the soleus and an increase in the weight of the tibialis.

6. In the discussion the hypothesis is presented that in immobilization, as in tenotomy, the abnormal tension to which the muscle is exposed causes the neuromuscular changes by a reflex mechanism.

Underwater Treatment Tank

Captain Arthur M. Pruce, M.C., A.U.S. In ARCHIVES OF PHYSICAL MEDICINE, 26:1:23, January 1945.

The need for an underwater tank of the Hubbard type led to the construction of a simple unit made entirely of nonessential materials at the Stark General Hospital. The wooden frame and metal lining can be made at a total cost of about $140 for labor and materials. A motor-driven agitator, which is an item of issue, increases the therapeutic value.

Hazards of Hypertherm Treatment

In JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 127:2:125, January 13, 1945.

Wallace and Bushby investigated changes occurring in patients undergoing hypertherm treatment to ascertain whether chemotherapy increases the risks and to discover prophylactic or therapeutic means of eliminating or minimizing the danger inherent in the treatment. They report clinical observations on 254 cases undergoing hypertherm treatment at 106.6 F. for eight hours. Of these, 37 were the subject of a detailed clinical, hematologic and biochemical investigation. The most constant and prominent features were the development of anoxia and of bilirubinemia progressing to definite clinical jaundice in 37 cases. Hippuric acid tests for liver function showed a considerable reduction in this function. Patients with jaundice should be treated as if they had hepatitis and should be kept warm in bed for at least three days or until the jaundice clears. Continuous oxygen and carbon dioxide therapy lessens, though it does not abolish, the anoxia. It appears to prevent circulatory collapse. Vomiting was less frequent after its introduction. Circulatory collapse is a failure of the vasomotor and respiratory centers and is not due to a reduction in the volume of the circulating blood or to myocardial failure. The use of morphine is contraindicated. Hypertherm treatment causes a transient polymorphonuclear leukocytosis and a transient hemodilution. There is a small transient rise in nonprotein nitrogen and a tendency for plasma chlorides and urinary chlorides to fall. The treatment has considerable dangers. The duration must be decided by the medical officer observing each case, but the following are suggested as indications for terminating treatment immediately: (1) fall of systolic blood pressure below 100 mm. of mercury, (2) disorientation, (3) pulse rate persistently over 160 per minute, (4) respiratory rate persistently over 50 per minute, (5) temperature of 107 F. for a quarter of an hour, (6) restlessness and violence, (7) coma, (8) pallor superimposed on cyanosis, (9) intolerance on the part of the patient, the restlessness of an intolerant patient adding greatly to the risks inherent in the treatment, (10) persistent vomiting. Catarrhal infection and nasal obstruction should be regarded as contraindication to treatment. The patient should be examined preparatory to the hypertherm treatment so as to exclude those with cardiovascular, respiratory, renal or hepatic disease. The treatment should be carefully explained beforehand to prepare the patient for his physical and mental ordeal. Oxygen and carbon dioxide should be given for at least an hour after treatment or until color improves. Premedication with 6 gm. of sulfathiazole does not increase the hazards of hypertherm treatment.

The Care of Soldier's Feet

Captain Paul A. Pemberton, Medical Corps, A. U. S. In THE BULLETIN OF THE U.S. ARMY MEDICAL DEPARTMENT, 84:112, January 1945.

The most common condition found is faulty foot posture, usually manifested by pronation of the foot. This is recognized by an outward rotation of the calcaneus with dropping of the inner border of the foot, thus throwing the body weight on the medial side of the foot and resulting in symptoms of strain of the longitudinal arch. The condition is due to relative weakness of the posterior tibialis muscle. There is sometimes an accessory navicular or prominence on the medial border of the navicular with resultant poor attachment of the tibialis posterior. The strain on the medial side of the foot may cause lowering of the longitudinal arch, resulting in one of the several types of flatfoot. Examination usually shows, in addition to pronation of the heel, tenderness beneath the astragaloscaphoid joint, where the patient localizes the pain. There is no swelling and no limitation of motion. Forcing pronation of the forefoot may cause pain. The diagnosis is strain due to faulty foot pressure and treatment is directed toward correction of the pronation. This includes overcoming the excessive lengthening and weakness of the tibialis posterior. Mild cases can be treated satisfactorily with a medial wedge under the heel of the shoe, 3/16 inch thick along the inner border and tapering off over halfway across the heel. The heel of the foot must fit snugly into the shoe.

In more severe cases the inner border of the heel is lifted by an arch support in addition to the wedge. A firm flexible support is used and the high point of the support should come under the sustentaculum tali and lift it up. This must be fitted carefully as there is a tendency to get the high point of the arch too far forward, usually under the navicular. This throws all the weight on the arch support and does not correct the pronation.

In the use of arch supports, the point of highest elevation of the longitudinal support should vary according to the condition for which the appliance is being fitted.

Acute Foot Sprain

Acute sprain is sometimes associated with the chronic strain of poor foot posture, usually within the first two weeks of training or after a long march. In addition to the signs described there is swelling through the midtarsal region. Ecchymosis does not occur. This foot will require rest from weight bearing if symptoms are severe. Taping the foot in slight inversion, with a fitted piece of felt under the longitudinal arch, will permit a limited amount of walking.

Modern Treatment of Anterior Poliomyelitis

Ora L. Huddleston, Major, M.C., Physical Therapy Section, Fitzsimons General Hospital, Denver, Colorado. In ROCKY MOUNTAIN MEDICAL JOURNAL, 41:12:893, December 1944.

During the past two years a new treatment consisting of combined artificial fever therapy and vitamin therapy has been developed. Intrathecal administration of thiamine chloride plus the oral administration of vitamin B complex and vitamin E combined with artificial fever therapy was used in the treatment of five cases of infantile paralysis. An earlier procedure employed intravenous and intramuscular administration of the vitamin B instead of intraspinal. Six cases were treated successfully using this procedure. The dosage of the thiamine chloride injected intraspinally was 20-50 milligrams, 18-24 hours prior to each successive fever treatment. The fever treatments were of short duration and low intensity. As a rule, a series of four to ten treatments were given with temperatures ranging from 103-105 F. with durations of only one-half hour at a temperature over 104 F. Vitamin C was given in doses of 150-200 milligrams during the fever treatment. The rationale for the use of artificial fever therapy in the treatment of anterior poliomyelitis is based on the belief that elevation of body temperature causes beneficial chemical changes in the spinal cord and a more rapid restoration of the reversible functional changes of the central nervous system. It is presumed that restoration of function of the nerve cells would be hastened in the cells that were not completely destroyed by the virus.

Estimation of Heat Radiation in Clinical Practice

David S. Evans, M.A., Ph.D. and K. Mendelssohn, M.A., Dr. Phil. (From the Nuffield Department of Clinical Medicine, Oxford). In BRITISH MEDICAL JOURNAL, No. 4381:814, December 23, 1944.

Whereas a great deal of work has been done on developing the quantitative administration of x-rays and radium rays, the administration of infra-red radiation for clinical purposes still relies to a great extent on guesswork. The reason for this discrepancy is twofold. In the first place, as we shall see presently, the problem of exercising quantitative control over the administration of infra-red radiation is far more complex than in the case of x-rays. Secondly, heat radiation is considered harmless, since overdosage is registered almost instantaneously by pain, whereas overdosage of x or radium rays is insidious, their effects not becoming apparent until some time after administration. It must be remembered, however, that weak sources of infra-red radiation are probably of little clinical value, and that powerful radiators producing definite clinical effects are by no means harmless.

Conclusion

The thermo-radiometer used by us is essentially a laboratory instrument, but it holds out good prospect for development into a simple radiation-flux indicator for clinical use. When this problem of accurate estimation of total flux has been solved the next step must be to devise an instrument capable of differentiating flux received by the patient in different wavelengths—i.e., an instrument capable of assessing the quality of radiation.

Meanwhile, a great deal can be done by an accurate determination of the total radiation flux received under various conditions from standard treatment lamps, and thus to ensure more reproducible and better-defined conditions of treatment by infra-red rays. There remains, of course, the great and complex problem of the physiological action of heat radiation. Here again the position is much more difficult than in the case of x rays. Whereas x rays are more or less uniformly absorbed by the tissues, in which they produce chemical changes, the action of infra-red rays results mainly in an increase in temperature produced near the surface of the skin, which is counteracted by perspiration and by dissipation of the local increase in temperature by the circulation. While a certain amount of information as to the penetration of infra-red radiation exists, little is known about the specific action of heat radiation under clinical conditions. As has been pointed out before (Brown and Mendelssohn, 1944), the physiological action of a given type of heat radiation is likely to be quite different in local and in general administration. The greatest need is for clinical observations of the effects of infra-red radiation administered in known quantities and under well-defined conditions, and we hope that the considerations advanced in this paper will aid the clinician in establishing conditions of treatment which will provide a sound physical basis for the study of clinical observations.

Summary

The physical factors involved in the clinical application of radiant heat have been enumerated and discussed. Computation of dosage based on the consideration of the nature of the treatment source is liable to grave error and should be discouraged. Treatment should be based on the direct measurement of radiation flux—i.e., the amount of radiant energy received on the surface of the patient's skin. The methods by which such measurements may be made have been discussed, and one particular radiometer has been described and recommended for clinical use.

Dangerous overdosage may be caused by: (a) neglect of the fact that the radiation from almost all treatment sources increases during the time of application; (b) attempts to determine the flux received by the patient with unsuitable radiometers which yield results far below the true values.

We should like to thank Prof. L. J. Witts for his interest and suggestions, and for the provision of experimental facilities during part of this investigation.

Poliomyelitis Treated by the Kenny Method: End Result Study of 29 Cases

A. D. Gurewitsch, M.D. and W. A. L. Thompson, M.D., New York. In ARCHIVES OF PHYSICAL THERAPY, 25:12:729, December 1944.

The New York Orthopedic Hospital took up the Kenny method of treatment for poliomyelitis in December 1941. Since that time this treatment has been carried on as a special study in an effort to determine its value. A routine of treatment, examinations and follow-up notes are gradually evolved, and all patients were seen after discharge in a special clinic at frequent intervals. Altogether, 60 patients whose onset was in 1941 or 1942 were treated. The follow-up study lasted twenty-four months for the 1941 patients and an average of fourteen months for the 1942 patients.

Summary

Twenty-nine patients treated by the Kenny method and followed for twelve to thirty months are reported on.

Twelve patients of the 29 show poor function of one or more extremities due to residual paralysis.

Scoliosis is present in 7 patients.

A total of 17 patients have either poor function of one or more extremities, a significant deformity or both.

Nine patients are dependent on braces for improved function.

This series is too small to be of statistical significance with regard to such a varying and scattered disease as poliomyelitis.

Simplification of the Method of Electrical Examination and Therapy of Nerves and Muscles

Herman De Jong, M.D., Durham. In THE NORTH CAROLINA MEDICAL JOURNAL, 5:3:92, March 1944.

Difficulties, both of a theoretical and of a practical nature, which have arisen in the past have made electrical examination and therapy of nerves and muscles less popular than it should be. At the present time the requirements of military surgery demand a thorough knowledge of the degree and kind of lesions of peripheral nerves, since early suturing of severed peripheral nerves by the neurosurgeon has such an extremely favorable prognosis.

As has been said before, a galvanic apparatus is capable of serving simplified diagnostic purposes almost completely. It also is sufficient for therapeutic purposes. For example, after suturing of a nerve, daily galvanic stimulation will counteract muscular atrophy during the period before conduction is reestablished. As was mentioned above, the muscle becomes inexcitable by faradic current in severe cases (total degeneration). Faradic stimulation could not counteract atrophy in such cases, in contrast to galvanic therapy. A simplified stimulator without the meter would be easily operable by the patient himself if the physician pointed out to him the location of the motor points where he should apply the "active" electrode.

Treatment of Fractures in Relation to Functional Result

Edward Harlan Wilson, M.D. In THE OHIO STATE MEDICAL JOURNAL, 41:1:38, January 1945.

Modern fracture treatment is generally considered to have begun when the use of the roentgen ray, in connection with the treatment and diagnosis of fractures, became general. As the general use of X-ray did not begin until about 1905, only a brief period of time elapsed before World War I occurred, with its mass demands for treatment of every conceivable type of fracture injury. Since fracture treatment had developed on an individual basis, the War served to simplify and standardize the individualistic methods which had been in use.

Rehabilitation

Finally, a word should be said about rehabilitation of the individual once the fracture has become healed. Physical therapy is a very useful measure in the transitional stage following nonuse. Beginning movements are painful due to the positional contracture of muscles and to the fibrosis of soft tissues from injury to them at the time of fracture.

The essence of physical therapy is to teach the patient to move the limb through a gradually increasing range of painless motion. If motion is begun gently and does not impinge on painful limits, the patient will rapidly gain confidence, increase his range, and become quite cooperative. If he is told simply to go out and begin moving his limb he will use it in an ungoverned manner which will cause sharp reaction of pain and muscle tightening. This is quickly converted into an exaggerated idea of guarding his limb from all motion.

Once physical therapy has brought about a fair range of motion, exercises against resistance should be instituted to increase the power of the muscles. Once this stage has been attained, physical therapy alone will not suffice and must be either accompanied by or supplanted by more active forms of activity. In the case of workmen it is especially important that employers take them back and furnish light, restricted work which will further aid the individuals in rapid restoration of ability to perform full duty.

Treatment by Movement

In Correspondence, BRITISH MEDICAL JOURNAL, No. 4379:771, December 9, 1944.

Sir, — I read with interest Dr. James Cyriax's article in the Journal of Sept. 2 (p. 303), and should like to be associated with him in stressing some of the points, at the same time criticizing others. His article deals with:

1. Treatment by movement as soon as possible and choice of type of therapeutic movement, which varies from tissue to tissue, with the nature, position, and extent of lesion, with the integrity or not of such structures as nerve or bone, and with the presence or absence of bacterial infection.

2. Modern methods in the treatment of fractures.

3. The need for deep massage in certain strains of ligaments and muscle attachments working over bone, and in cases of tenosynovitis.

4. The use of passive movement in addition to active movements to maintain or restore full joint movement.

5. The use of faradism only in initial stages.

I am glad that Dr. Cyriax drew attention to the need for deep massage in certain cases, as the teaching is so much against massage in general that it is often denied to cases in which it should be the main treatment. I would like to add to his list of suitable cases enlargements of infrapatellar pads of fat and collections of organizing hematoma in places where there are no muscles, so-called "dead areas." I am certain that Dr. Cyriax would be first to agree that other forms of physical treatment, such as anodal galvanism, diathermy, heat, and faradism, are a great adjunct to massage.

I am surprised that he uses the phrase "passive movement," and I agree with Watson-Jones that the term should be used only in cases of paralyzed muscles. Dr. Mennell has stressed the importance of the range of involuntary movements possessed by each individual joint and how important these movements are for free painless active movement.

Gray's Anatomy describes them as accessory movements and divides them into two types: (1) Certain movements which cannot be performed voluntarily, but only when resistance to active movement is encountered, as in imparting spin to a cricket ball with the fingers, thus causing a rotation at the metacarpophalangeal joint. (2) Movements with complete relaxation of the muscles, as in the play between articular ends of the bones forming a joint.

It is evident then that every mobile joint has a range of (1) active voluntary movement and (2) involuntary movement. These involuntary movements allow for gliding of one bone on the other, rotary movements, and side bending. If after a simple sprain of a joint there are pain and limitation of movement at the end of two months, most orthopedic surgeons would recommend a manipulation of the joint under anesthesia, but if gentle manipulative movements are carried out as part of the other treatment, such as exercises, massage, contrast baths, and faradism, it is seldom that there is not a return to full range of joint movement in any sprained joint at the end of three weeks. Therefore I suggest that it would be better to delete the phrase "passive movement" and substitute "gentle manipulative movements." Apart from that, the methods of applying the manipulative movements are quite different, and, as Dr. Mennell points out, passive movements themselves are the cause of inflammatory reactions and increased stiffness, which gentle manipulative movements never produce.

Another important distinction in active movement, which I did not consider he brought out, is the difference between isometric and isotonic movements. With an injured limb in plaster, movements will be isometric —i.e., the muscle contracts and broadens, but does not lengthen. As the joint has been placed in the optimum position of rest, movements of this type will prevent wasting of muscles and overstretching of the antigravity muscles, and at the same time hasten the absorption of traumatic effusion. In isotonic movements, although the tone in individual muscle fibers is equal, stretching and alteration in the length of the muscle take place. This may lead to overstretching of one group of muscles with contraction of their antagonistic group.

Faradism given properly throughout aids and encourages active movement, and allows each muscle of a group to be actively stimulated individually, so that one muscle works on the other, preventing intermuscular adhesions. This is not allowed by active group movement alone, and one only has to see cases treated by exercises plus faradism, compared with those treated by exercises alone, to appreciate the difference in recovery time.—I am, etc.

W. E. Tucker
Major, R.A.M.C.;
Orthopedic Specialist

Synchronization of Spontaneous Activity in Denervated Human Muscle

Major Abner M. Harvey, Medical Corps, Army of the United States and Stephen W. Kuffler, Research Fellow, Kanematsu Memorial Institute of Pathology, Sydney Hospital, Sydney, Australia. In ARCHIVES OF NEUROLOGY AND PSYCHIATRY, 52:6:497, December 1944.

If mammalian muscle is deprived of its nerve supply, no spontaneous activity can be observed for several days. After that period spontaneous contraction of individual muscle fibers sets in, and may persist for a year or longer unless nerve regeneration occurs or the contractile muscle tissue disappears. This activity is not visible through the skin. Visible movements of groups of muscle fibers are always associated with the discharge of at least one motor nerve impulse. To our knowledge, there has not been described in the literature a case of spontaneous synchronized activity of muscle fibers in a completely denervated muscle. Such a case, in which absence of innervation could be ascertained by various methods, has been under observatioo for several months at an Army general hospital.

Summary

In an investigation of the spontaneous synchronized activity of groups of muscle fibers in muscles of the hypothenar eminence of a patient in whom the motor fibers of the ulnar nerve had been completely interrupted for four months, the following observations were made:

1. Electromyographic recordings showed muscle groups discharging at a frequency of 8 to 10 per second. The discharges tended to appear in constant rhythmic groups. The number of spontaneous movements could be greatly increased by stretching of the muscles.

2. Complete absence of innervation of the active muscles was demonstrated by various methods.

3. The origin and the synchronization of the activity may have occurred at the region of end plates in the denervated muscles.

Place of Manipulative Procedures in the Over-all Treatment Rationale for Painful Back Conditions

Captain Frederick A. Jostes, MC-V (S), U.S.N.R. Office of Rehabilitation, Bureau of Medicine and Surgery, Navy Dept. In ARCHIVES OF PHYSICAL THERAPY, 25:12:720, December 1944.

Many physicians have yet to learn how painful and how disabling an acute condition of the back can be. It is a rather sad commentary that one should often hear a physician, suddenly struck down by such a condition, say in agony: "I never knew my patients had such pain. I always felt that much of their pain was in their minds." While some physicians are interested in cases of back pain, and understand them, know how to help the patients and like working with them, others are not interested, do not help the patients, do not understand them and therefore continue to dislike working with them.

In recent years, the surgical approach in the treatment of painful back and sciatic irritation has done much to mask the rationale of conservative treatment. Now that it has been proved that operation is not always indicated for disk involvement and in many cases is futile, it may be well to summarize a few facts about the conservative treatment of disabling back conditions.

It is well known that backache may be the result of any of a large number of causative factors. These factors may be presented best in a simple outline, as follows:

I. Diseases
   - A. Arthritis.
   - B. Tuberculosis.
   - C. Deficiency disease. Scheuermann's disease.
   - D. Pyogenic infections.
   - E. Destruction of intervertebral disk.
   - F. Spondylolysis.

II. Congenital anomalies
   - A. Spina bifida.
   - B. Failure of union of pars interarticularis.
   - C. Abnormal interlaminar joints.
   - D. Spondylolisthesis (resulting from congenital defects).
   - E. Platyspondylisis.
   - F. Sacralization of transverse processes.

III. Trauma
   - A. Fractures (fresh). Fractures (old).
   - B. Sprains.
   - C. Ruptured nucleus pulposus.
   - D. Spondylolisthesis (purely traumatic).
   - E. Kummell's disease.
   - F. Subluxation of apophysial joints.

IV. Postural defects.
   - A. Lordosis.
   - B. Kyphosis.
   - C. Scoliosis.
   - D. Short tensor fascie lata.

Over-all Treatment Methods

It must be remembered that while any one thing done in the way of treatment may give dramatic relief of pain, each type of treatment must be supported by other methods.

It is, for example, wrong to believe that because a patient was dramatically relieved of an acute backache by manipulation without anesthesia, or by the prescription of a particular support or a firm bed, treatment was ended. Supportive measures in the way of exercises, postural correction without support, postural rest, heat, massage, bed correction and so on are essential to continued relief. The causes of backache may be classified as follows:

A. Faults in posture.
   1. Standing.
      - (a) Awkward position at work bench.
      - (b) Habit of stance.
   2. Sitting.
      - (a) Bad chair angle.
      - (b) Overstuffed furniture and automobile seats.
      - (c) Sagging upholstering.
      - (d) Improper sitting angle in chair properly constructed.
   3. Lying down.
      - (a) Sagging bed.
      - (b) Inner spring mattress (curse of modern age).
      - (c) Firm mattress with hole worn by weight of buttocks.

B. Type of work performed.
   1. Lifting.
      - (a) Improper lifting.
      - (b) Excessive weight.
   2. Stooping at work.
   3. Overhead work (causing increase in existing hyperextension).

C. Type of sport or exercise indulged in.
   1. Not weight bearing (bed exercises).
   2. Weight bearing, partial (swimming).
   3. Weight bearing.

D. Diseases causing pain (attempted cure).

Nasogenic Asthma

Clive Shields, B.M., B.Ch., Assistant Superintendent, Physiotherapy Department, St. George's Hospital, London; Director, Physiotherapy Department, Victoria Hospital for Children, London. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 7:6:173, November-December 1944.

General Scheme of Treatment

Treatment falls conveniently under three headings: (1) Instruction in the correct manner of breathing. (2) Attention to the nasal factor. (3) The resolution of any psychological, social or environmental factors which may be discovered and measures for the correction of chemical or metabolic abnormalities.

Breathing Exercises

At the first session it should be explained to the patient that physically his condition is due to the fact that, whereas he is able to get air into the lungs, he experiences difficulty in expelling it.

(a) Inspiration. Next make it clear that inspiration consists—or should consist—of three phases or stages:

(i) an expansion of the base of the lung by the descent of the diaphragm;

(ii) an expansion of the middle zones of the chest by a lateral or sideways movement of the lower ribs;

(iii) an expansion of the upper zones by a forward and upward movement of the upper ribs.

Expiration. The mechanism of inspiration having been understood and correctly performed, the teacher directs her efforts to instructing the asthmatic in correct expiration. The patient is first asked to imagine a collection of dust in the angle formed by the ceiling and wall opposite the couch; the purpose of this is shown below. Next it is explained that expiration consists of two phases without any interval between, and that it should be in the nature of a long-drawn-out sigh.

There is often an increased cough and expectoration in the early stages of treatment as the basal expansion improves and this is to be regarded as a hopeful sign. The patient, however, should always be warned of its possible occurrence.

An Industrial Medical Center

B. Crosthwaite, M.R.C.S., L.R.C.P. Chief Medical Officer, Automotive Products, Ltd., and Associated Companies, Royal Leamington Spa. In THE BRITISH JOURNAL OF PHYSICAL MEDICINE AND INDUSTRIAL HYGIENE, 7:6:168, November-December 1944.

About a year ago the Directors of the Associated Companies, Automotive Products, Ltd., Lockheed Hydraulic Brake Co., Ltd. and Borg & Beck, Ltd., popularly known as "Lockheed," decided upon a long-term policy in connection with their medical and allied services for employees.

Physical Therapy—Hitherto, physical therapy has not been carried out, because of the absence of suitable premises. As in the case of x-ray investigation, care is necessary to avoid competition with the local hospital and the facilities available at the spa Pump Rooms. It is intended to utilize this section partly as a small solarium for tonic irradiation of selected persons, particularly permanent night-workers and those factory employees who alternate fortnightly on day and night shifts. Ultraviolet and infra-red irradiation will be carried out for suitable skin conditions and in the treatment of suitable conditions arising out of employment where such treatment will permit continuance at work. Massage and manipulation are carried out during rehabilitation at work and have resulted in a considerable saving of production loss and loss of wages to workers. As in all cases, treatment by physical therapy is carried out only with the knowledge and consent of the personal medical attendant. It is becoming increasingly prevalent for outside medical practitioners to avail themselves of the medical facilities at the works. So far as the Royal Pump Rooms of the municipally-owned spa are concerned, we maintain a most cordial relationship. The management of the spa has agreed special fees for treatments and medicinal baths, the fees barely covering the outlay involved. In addition we are provided daily, free of charge, with as much of the hypotonic and hypertonic saline spa waters as we require. The local hospital, which was formerly the "Royal Bathing Establishment," still retains a good deal of the usual spa facilities and these are available to all workers as contributors to the hospital. The problem at the moment is for workers to find time to attend the hospital or spa, owing to the necessity for overtime work and a reluctance to utilize week-end leisure for this purpose. It is felt, therefore, that much useful work can be done at the medical center by the carrying out of essential treatment during working hours.

The Effect of Galvanic Exercise on Denervated and Re-innervated Muscles in the Rabbit

E. Gutmann and L. Guttman (Department of Zoology and Comparative Anatomy, Oxford). In JOURNAL OF NEUROLOGY, NEUROSURGERY AND PSYCHIATRY, 7:1 and 2:17, January-April 1944.

In a previous paper (Gutmann and Guttman, 1942) it was shown that galvanic exercise of denervated muscles to a great extent counteracted the atrophy of the paralyzed muscles and accelerated return to their initial volume after re-innervation. The principle of the method employed was to elicit vigorous contractions but to avoid nociceptive reactions. Stimulation was applied for 20 minutes daily with a current strength of about 5 ma.

Galvanic current only was used in all cases as this type of current is mostly used in man. The initial standard method of treatment was 20 minutes galvanic exercise daily at a current strength of 4-6 ma.

Summary

Daily application of galvanic exercise with a current strength sufficient to elicit vigorous contractions of the muscles was found to delay and diminish atrophy in denervated and re-innervated rabbit muscle. The most satisfactory results were obtained with a daily exercise of 20-30 minutes duration. The effect was greater the earlier the treatment was started following denervation.

Treated muscles showed larger muscle fibers and less fibrosis than untreated ones.

After a maximal treatment (1 hour daily), beginning immediately after denervation, the muscles lost only 17 per cent in weight in 60 days, compared with a loss of 59 per cent, in untreated muscles.

No attempt was made to avoid fatiguing of the stimulated muscles during the exercise and this did not prevent the beneficial end effect.

The main effect of the treatment appeared during the period of denervation but a difference was still demonstrable 4 months after interruption of the galvanic exercise. The effect of treatment is therefore not masked by the normal process of muscle recovery after re-innervation.

No certain effect of galvanic exercise was found on the time of onset of motor recovery, but the degree of motor recovery was higher in the treated muscles.

Physical Medicine Comes Into Its Own

George Morris Piersol, M.D., Philadelphia. In ARCHIVES OF PHYSICAL THERAPY, 25:12:723, December 1944.

Physical medicine, broadly speaking, means the management of disease by physical agents. Such agents include heat, cold, light, electricity, massage, exercise and manipulation of various types. In this field must also be included spa therapy, climatology and hydrology. Heretofore the term "physical therapy" has been used generally to designate treatment of this type. The newer term "physical medicine" now is being widely adopted as more accurate and descriptive, since many of the physical agents above enumerated are used not only in the treatment but also in the diagnosis and prevention of disease.

It is one of the curious phenomena of American medicine that until recently the majority of the medical profession of this country have exhibited little interest in and less knowledge of physical medicine. This apparent indifference to one of the oldest as well as one of the most useful fields of therapeutics has been due largely to the fact that until a few years ago the subject was either entirely omitted from the courses given to our medical students or at best was accorded an insignificant place in the medical curriculum. Consequently, physicians entered upon the practice of medicine for the most part without even a fundamental knowledge of the basic principles involved in this form of therapy. The lack of appreciation and interest on the part of the medical profession in physical medicine has made it possible for less orthodox and indifferently trained groups to become aggressively active in and to monopolize a field of therapy which must be and should always have been under the control and regulation of qualified physicians.

Expanded educational programs in physical medicine involve first the organization of adequate courses both practical and didactic in the undergraduate medical schools. The opportunity should be given our medical students to become familiar with this broad field of therapy as they are with other methods of treatment. When the present accelerated war time programs can be given up for normal, orderly curricula, it is hoped that the present meager courses in physical medicine will be expanded. Training in physical medicine should not cease with the medical school but should be carried through the interne and resident years in our hospitals. Just as internes are now required to spend a certain amount of time in the radiological department and the clinical laboratory, in the future work in the departments of physical medicine should be made part of their scheduled duties. Thus, oncoming generations of physicians will be prepared to enter upon the practice of medicine aware of the value of physical therapy and skilled in its various technics.

Poliomyelitis

Charles Varga, M.D., New York. In ARCHIVES OF PEDIATRICS, 61:12:636, December 1944.

Introduction

The year of 1944 will be recorded as one during which poliomyelitis occurred in an epidemic form surpassed only a few times before in medical history. This is obviously of great concern to physicians and public health workers for their studies have not yet brought this disease under control.

Summary and Conclusions

The newer concepts of poliomyelitis have been reviewed and an attempt has been made to present actual cases which indicate the various manifestations of poliomyelitis as seen in the 1944 epidemic in New York City.

Several important developments which aid in the comprehension of this disease entity have been presented.

1. Certain sensory manifestations in individuals suffering from disease are explained on an anatomical basis inasmuch as sensory ganglia show involvement.

2. Involvement of the entire nervous system seen at autopsy indicates that the disease is generally a polioencephalomyelitis.

3. Pathologic changes appear in the internuncial neurons and degeneration of the synaptic associations on the surface of the anterior horn cells in many cases; thus muscle spasm may have a neurogenic basis.

4. Recovery of muscles which occurs in many cases is explained on the basis of partial degenerative changes from which the neurons recover rather than on the basis of disappearance of edema.

5. Atrophy, fibrillation and changes in chemical and electrical excitability are the fundamental features of degeneration and denervation of skeletal muscle.

6. Secondary changes in muscles following immobility and disuse seem to be more severe than those following overactivity.

7. Periodic electrical stimulation of denervated muscle can decrease atrophy.

8. When the strength of voluntary contractions of muscles increase through treatment, spasticity decreases.

9. The upper portion of the alimentary tract seems to be the portal of entry of the obligate neural virus.

10. The incubation period averages 12 days; the infectious period lasts from four days before to five days after the onset of symptoms.

11. The agent escapes by way of stools and secretions of the upper respiratory tract.

12. Flies may be vectors; the common house fly is not generally a vector.

13. The mode of spread is possibly by contact or contamination of foods.

14. The incidence of bulbar and bulbospinal poliomyelitis is significantly higher in those patients who had had tonsils and adenoids removed in early life.

15. The problems of immunity are not well understood.

16. Pregnancy complicated by poliomyelitis does not generally result in an infected fetus.

17. Certain precautions must be taken in cases associated with respiratory complications.

18. The use of prostigmine has been advocated on an anatomicophysiologic basis.

19. The efficacy of serum therapy is debatable.

20. An outline of therapy is presented.

(Note: Since this paper was prepared two editorials have appeared in which important new works concerning poliomyelitis are discussed.)

Experimental studies with monkeys have shown that nontraumatic exposures to the virus of the respiratory and alimentary mucous membranes of cynomolgus monkeys may be followed by a definite resistance to later intracerebral inoculations of the virus. It is inferred from this that in human abortive or nonparalytic cases the nature of the type of poliomyelitis may be a result of previous natural exposures to the virus in small amounts.

Special experiments carried out by Faber indicate that the concept of poliomyelitis as an air borne disease acquired by inhalation of contaminated air or dust deserves more consideration. However, the infrequence of development of poliomyelitis in the wards by workers therein speaks against such a spread.

Causalgia: A Preliminary Report of Nine Cases Successfully Treated by Surgical and Chemical Interruption of the Sympathetic Pathways

Capt. I. Joshua Speigel and Capt. Jack L. Milowsky, M.C., A.U.S. In J.A.M.A. 127:1:9, Jan. 6, 1945.

Burning pain, hyperesthesia and trophic disturbances with their various side effects, resulting from injury to a peripheral nerve, were first grouped as a symptom complex in 1813 by Alexander Denmark, surgeon to Haslar Hospital. He described a typical picture of median nerve causalgia with ulceration of the palm of the hand. Percival Potts before this had referred in his lectures to the intractable pain occasionally resulting from the partial division of a peripheral nerve. Paget in 1864 gave an accurate description of the trophic and secretory phenomena associated with causalgia, saying, in his description of the changes in the hands and fingers, "The fingers are usually tapering, smooth, hairless, almost void of wrinkles, glossy, pink, ruddy, or blotched as if with permanent chilblains." In the same year the term causalgia itself was coined by Mitchell, Morehouse and Keen in an article in which are described their experiences with wounded Civil War soldiers. Their vivid word pictures of causalgia are unsurpassed and still endure as the standard description of the disease. They state:

"Its intensity varies from the most trivial burning to a state of torture which can hardly be credited but reacts on the whole economy until the general health is seriously affected. The part itself is not alone subject to an intense burning sensation but becomes exquisitely hyperesthetic, so that a touch or a tap of the finger increases the pain. Exposure to the air is avoided by the patient with a care which seems absurd, and most of the bad cases keep the hand constantly wet, finding relief in the moisture rather than in the coolness of the application. . . . He [the patient] walks carefully, carries the limb tenderly with the sound hand, is tremulous, nervous and has all expedients for lessening his pain."

The literature on the subject since then has occupied itself in the main with discussions of the etiology and therapy of this painful affliction.

The therapy of causalgia is aimed at one of three expedients—removal of the cause of irritation to the nerve, interruption of the afferent pathway in the peripheral nerve and finally interruption of the sympathetic supply of the extremity.

In an unselected series of 275 peripheral nerve injuries, 3 per cent presented the picture of causalgia.

The syndrome followed injury to all or any of the major nerves of the upper extremity. In spite of numerous lower extremity nerve injuries, only 1 case of lower limb causalgia occurred.

Injury to a blood vessel frequently accompanies nerve injuries in causalgia but is not a necessary concomitant of nerve injury in the production of causalgia.

The most constant symptom of causalgia is hot burning pain aggravated by movement and friction.

The most constant findings are a shiny, cold, profusely perspiring and frequently cracked skin in the involved extremity with hyperesthesia occurring in most of the cases. X-ray evidence of decalcification of the involved extremity is frequently seen.

The pain does not appear to be due to the continuous irritation of scar or foreign body.

The degree and quality of the pain are in no way commensurate with the type and extent of injury.

The sensory deficit does not delineate the area of pain, but the two frequently shade into each other.

Personality disorders and hysteria are the result rather than the cause of causalgia.

Interruption of the sympathetic pathway, temporarily by sympathetic block or permanently by surgical sympathectomy, is a highly dependable form of treatment for causalgia. In the upper extremity it is not necessary to remove the stellate ganglion for effective control of the pain.

Book Reviews

What is Hypnosis: Studies in Auto and Hetero Conditioning. *By Andrew Salter. Cloth. Price, $2. Pp. 88. New York: Richard R. Smith, 1944.*

The little monograph is this author's views on hypnosis. In the subtitle he calls it studies in auto and hetero conditioning and the attempt is made to prove hypnosis is a conditioning process. Although it is written in a simple style it does not seem to answer the question raised by its title. A proper elucidation of the mechanism at play in hypnosis would be a great help to medical science. One may commend the author on his efforts in this direction, although to this reviewer they do not seem very productive.

Contemporary Psychopathology: A Source Book. *Edited by Silvan S. Tomkins, Ph.D., Instructor in Psychology, Harvard University, Cambridge. With an introduction by Henry A. Murray, M.D., Ph.D., Director of the Harvard Psychological Clinic. Cloth. Price, $5. Pp. 600, with illustrations. Cambridge: Harvard University Press, 1943.*

This volume is a collection of papers from the periodical psychiatric and psychologic literature of the preceding five years or so. It is intended for courses in abnormal psychology and attempts to make current literature more readily available for the student. There is no attempt at discussion or integration of the material except that articles dealing with related subjects are grouped together in four sections.

The first section deals with several phases of child psychiatry. Next comes a section on psychoneuroses and psychosomatic medicine. The third section deals with several phases of "the schizophrenic psychoses," and finally comes a section on experimental psychopathology which is almost exclusively contributed from experimental psychologic literature.

There has been no attempt to survey the whole field of psychopathology and in this sense the title of the book is misleading. One can readily see the difficulty encountered in selecting material for such a volume since it would have to be representative of current thought. In this the author has ably pointed out the interest in dynamic psychiatry and the old subject with a new name— psychosomatics. Some of the articles in the last section are of particular value in indicating experimental approaches to dynamic psychiatry.

Since this book is considered to be a source book in psychopathology, one must criticize it for not giving the student any idea of the relative importance of the subjects discussed as compared to the very important subjects that have been omitted. Furthermore the articles are practically all drawn from current readily available American literature and as such one can certainly say that in many instances we are not truly given the source. The book does give a survey of trends of interest and thinking in the fields of psychopathology with which it deals.

Surgery of the Ambulatory Patient. *By L. Kraeer Ferguson, A.B., M.D., F.A.C.S., Late Commander, Med. Corps., United States Naval Reserve, Assistant Professor of Surgery, University of Pennsylvania; Assistant Surgeon, Hospital of the University of Pennsylvania; Surgeon, Philadelphia General Hospital and Doctor's Hospital; Consulting Surgeon, Frankford Hospital; Chief of the Surgical Out-Patient Department, Hospital of the University of Pennsylvania; Chief of the Proctologic Clinic, Hospital of the University of Pennsylvania and Philadelphia General Hospital. With a Section on Fractures by Louis Kaplan, A.B., M.D., F.A.C.S., Associate in Surgery, University of Pennsylvania; Associate in Surgery, Mt. Sinai Hospital; in Charge of the Fracture Division of the Surgical Out-Patient Department, Hospital of the University of Pennsylvania. Cloth. Price, $10. Pp. 923, with 654 illustrations. Philadelphia: J. B. Lippincott Company, 1944.*

This book is divided into three parts. The first is a more or less general discussion of typical lesions, with a description of their cause, course and care. The second part is on regional surgery. Here are detailed the common surgical lesions of specific parts and the methods of treatment. The third section deals with fractures and dislocations and their treatment in ambulatory patients.

Surgery of the ambulatory patient is the surgery performed more often by the younger men and general practitioners. So this book meets a need for a text devoted to this much-neglected branch of surgery. The larger books on surgical practice are written by men who are too far away from this type of work to appreciate its problems.

The lesions discussed are those which are met regularly in an office or out-patient clinic, and the best methods of treating them are described. The author points out the mistakes of treatment as well as the successes.

The author emphasizes that ambulatory surgery should be safe surgery. For instance, operations upon patients with blood dyscrasias, such as hemophilia or leukemia, even though the lesions are insignificant, are best performed in a hospital because of the danger of postoperative bleeding. In diabetes, even minor operations should be performed in the hospital because of the danger of metabolic complications.

Every general practitioner should read and use this book for reference.

Treatment in General Medicine. *Edited by Hobart A. Reimann, M.D., Magee Professor of Medicine and Clinical Medicine, Jefferson Medical College, Philadelphia, with 34 contributors. Foreword by Morris Fishbein, M.D. Cloth. Four Volumes and Desk Index. Price, $40. Pp. 3154, with 330 illustrations. Philadelphia: F. A. Davis Company, 1944.*

This edition of this useful system of treatment is thoroughly revised. For convenience in handling, the work is now divided into four volumes instead of three. Extensive changes and additions have been necessary in the present volumes especially in sulfonamide chemotherapy and in antibiotic therapy. The increasing importance of diseases prevalent in the tropics has required thorough revisions in their treatment.

Several changes have been made in authorship. Several newly recognized entities have been included for discussion, such as pinta, Bullis fever, the "viral pneumonias," ornithosis, coccidioidomycosis, epidemic nausea, vomiting and diarrhea, toluene poisoning, cadmium poisoning and others. New remedies and methods of treatment, such as penicillin, thiouracil, plasma and intramedullary injection have been discussed as well as the significance of the Rh factor. The section on the treatment of pulmonary diseases has been amplified and a short treatise on therapy with amino acids has been added.

Over three hundred pages are devoted to physical therapy by Dr. John S. Coulter. In this section only those agents used by the general practitioner in his office or ordered by him for use in the patient's home are considered. Therefore, many physical agents used in spas and hospital physical therapy departments are omitted, such as hydrotherapy, hyperpyrexia, hydrogymnastics, occupational therapy and parts of electrotherapy, such as ion transfer.

By the judicious elimination of unimportant and antiquated methods, the editor and the contributors have achieved clarity and simplicity. So it can be highly recommended to the general practitioner as a modern, direct and extremely useful system of treatment.

The Art of Resuscitation. *By Paluel J. Flagg, M.D., Chairman, Committee on Asphyxia, American Medical Association; Visiting Anesthetist, Manhattan Eye and Ear Hospital; Consulting Anesthetist to St. Vincent's Hospital, The Woman's Hospital, Sea View Hospital, Jamaica Hospital, Mount Vernon Hospital, Flushing Hospital, Mary Immaculate Hospital, St. Mary's Hospital, and Nassau Hospital. With a foreword by Chevalier Jackson. Cloth. Price, $5. Pp. 453, with illustrations. New York: Reinhold Publishing Corporation, 1944.*

This book tells the reader what to do when faced by an acutely asphyxiated patient about to die. A brief reference to the historical background is presented. The pathologic physiology of asphyxia is developed from two points of view—research and clinical. The principles of resuscitation are carefully considered. Following a consideration of manual and mechanical methods of resuscitation, the attention of the reader is directed to the hazard involved in the transportation of the unconscious patient.

There is a part devoted to the discussion in some detail of the specific causes of asphyxial accidents and the indications requiring relief.

The author is a pioneer in this generally misunderstood field. He covers all aspects of this problem vigorously and thoroughly from the newborn infant to poliomyelitis and from industrial accidents to high-altitude flying. It is recommended to anesthetists, obstetricians, nurses, first aid instructors, rescue squads, police and fire departments and to others interested in preventing deaths from asphyxia.

Aids to Orthopedic Surgery and Fractures. *By I. E. Zieve, M.A. (Capetown), F.R.C.S. (Eng.), Surgical Registrar, Charing Cross Hospital; Temp. Asst. Orthopedic Surgeon to the Royal Waterloo Hospital, London. Second Edition. Cloth. Price, $1.75. Pp. 180. London: Bailliere, Tindall and Cox, 1944.*

This pocket size booklet is valuable to medical students and internes. Chapters one to six deal with congenital deformities; fractures; injuries to joints, muscles and tendons; inflammatory diseases of bones, joints, muscles, tendons and bursae and new growths of bone. Chapter seven discusses these same influences on the nervous system. The final chapter deals with those acquired deformities which are the price the body has had to pay for survival after its struggle against an unfriendly environment.

Psychiatry for Nurses. *By Louis J. Karnosh, B.S., Sc.D., M.D., Associate Clinical Professor of Nervous Diseases, School of Medicine, Western Reserve University, Cleveland, and Edith B. Gage, R.N. In collaboration with Dorothy Mereness, A.B., M.N., R.N., Instructor of Psychiatric Nursing, Neuropsychiatric Division, City Hospital, Cleveland. Second edition. Cloth. Price, $2.75. Pp. 339, with 38 illustrations. St. Louis: The C. V. Mosby Company, 1944.*

The compact volume presents a brief outline of the modern concepts of psychiatry and the approach to psychiatric understanding for nurses. It is written along formal lines with chapters discussing history, etiology of mental disease, personality structure and so on. There is an excellent section on the management and observation of the mental patient. Chapters are devoted to discussions of the major psychoses, including the various organic reactions. The authors have shown good judgment in making the discussion of the psychoneuroses very elementary. The final chapters deal with such subjects as physical and occupational therapy, shock therapy, psychiatry and the law and finally mental hygiene.

Throughout the book one is impressed by the clarity of expression and simplicity of language. There are no complicated discussions on debatable subjects. It is written for nurses and as such it is one of the most commendable books in recent years. It is a successful attempt to present the complex subject of the understanding and hospital management of the psychoses to the allied branches of the profession who must spend much time with these patients even though there usually has been very little opportunity for them to get adequate psychiatric training.

Radiation and Climatic Therapy of Chronic Pulmonary Diseases with Special Reference to Natural and Artificial Heliotherapy, X-Ray Therapy, and Climatic Therapy of Chronic Pulmonary Diseases and All Forms of Tuberculosis. *Edited by Edgar Mayer, M.D., F.A.C.P., F.A.C.C.P., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York City; Attending Physician, New York and Memorial Hospitals; Special Pulmonary Consultant, New York State Department of Labor, and 22 contributors. Cloth. Price, $5. Pp. 393, with illustrations. Baltimore: Williams and Wilkins Company, 1944.*

This volume presents a concise treatise on light, x-ray and climatologic therapy as applied to chronic pulmonary diseases including all forms of tuberculosis. Doctor Coblentz of the National Bureau of Standards has a chapter on the physics of light radiation; Doctor Laurens of the Tulane University School of Medicine presents the physiologic action of light, and Doctor Krusen and Doctor Elkins of the Mayo Clinic discuss the sources of light and the modes of general and local administration. Incorporated in this work are the editor's clinical experiences and those of many others applying these measures to these conditions.

The editor writes that "too frequently those engaged in treating pulmonary diseases peremptorily disregard the therapeutic possibilities inherent in light and x-ray radiation as important adjuvants in the management of selected patients." There is no doubt as to their usefulness, when applied with full knowledge and understanding of the theory and practice involved. In proper dosage and used in carefully selected cases, these adjunctive measures have turned the tide in favor of the patient.

This volume can be recommended to physical therapists as a reference book on this subject. The material presented in these pages holds practical significance for the general practitioner and the chest specialist.

Soldier to Civilian: Problems of Readjustment. *By George K. Pratt, M.D., Psychiatric Examiner, U. S. Armed Forces, Induction Center, New Haven, Conn. Foreword by George S. Stevenson, M.D., Medical Director, The National Committee for Mental Hygiene. Cloth. Price, $2.50. Pp. 233. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1944.*

This book deals with some of the problems of adjusting to family and community life faced by the returned soldier or sailor. Since the war is not ended, virtually all the men it concerns have been discharged from military service because of some type of handicap, either physical or psychological.

These pages show how reasonable are the quandries of the veteran, considering what he has been through. The veteran needs retooling. It is retooling for effective civilian living just as he was retooled for effective military living. Many gratuities, such as pensions, may be thrown to him that will have an opposite effect. What is done wisely or unwisely for the veteran will be the sign and measure of our times and a forecast of our future.

This book should be read by every relative, friend or employer who sincerely wishes to be helpful to the ex-serviceman in this period. The author is an eminent practicing psychiatrist. In simple language he gives sensible advice and concrete suggestions on how to handle many of the situations met in returning service-people.

American Medical Practice in the Perspectives of a Century. *By Bernhard J. Stern, Ph.D., Lecturer in Sociology, Columbia University; Visiting Professor of Sociology, Yale University. Cloth. Price, $1.50. Pp. 156. New York: The Commonwealth Fund, 1945.*

The Committee on Medicine and the Changing Order was established by the Council of the New York Academy of Medicine in 1942. The Committee was composed of physicians, representatives of the allied professions of dentistry and nursing and laymen. The Committee early enlisted the cooperation of a number of experts in the composition of a series of monographs devoted to the major medical problems of today. This monograph is the story of the reciprocal interplay between social, technological and economic forces and medicine.

The story begins with a broad description of the social and industrial conditions that prevailed in the United States early in the nineteenth century, and against this background the author outlines in high relief the characteristics of the medical education and practice of the period. He then traces the evolution of the social and economic world of today, revealing the effects which the growth of machine production, industrial urbanization and economic concentration have had on the health of the people. Parallel to this development the author sketches the concurrent growth of the science of medicine, the increasing cost of its services, the increasing duration and costliness of medical education, the growth of specialization, the phenomenal development of the modern hospital and the extent of the present distribution of medical care.

This account affords the reader insight into the origin of many of the significant problems which beset medical practice, medical education and medical research.

Principles and Practice of Surgery. *By W. Wayne Babcock, M.D., F.A.C.S., Emeritus Professor of Surgery, Temple University; Acting Consultant, Philadelphia General Hospital, with the collaboration of thirty-seven members of the faculty of Temple University. Cloth. Price, $12. Pp. 1331, with 1149 illustrations. Philadelphia: Lea & Febiger, 1944.*

With the aid of his collaborators the author has made his former "Textbook of Surgery" the framework for this new and more comprehensive work. This book is carefully edited, the statements are concise, and the illustrations are excellent. More detail as to modern surgical practice is included in this single volume than has ever before been attempted in one volume.

The recent decided advances in surgical practice are incorporated, such as the amazing results obtained from penicillin in syphilitic, gonorrheal, streptococci and staphylococci infections; the evidences of toxicity and limited antiseptic action of sulfonamides applied locally to wounds and to burned surfaces; of the harm resulting from the washing of wounds; the introduction of thrombin containing media to produce hemostasis and primary adhesion between divided tissues; the substitution of aseptic pressure methods for the coagulation treatment of burns; the improvements in the prevention and treatment of thrombosis and embolism; the increased safety brought to transfusion from recognition of the Rh factor, and advances or modifications in the use of plasma, parenteral feeding and the maintenance of fluid and electrolyte balance.

This volume considers that new and less irritating suture materials have markedly decreased infections in closed wounds and with muscle-splitting incisions have largely eliminated wound disruption; and that the non-irritating alloys have inaugurated a new era in the internal and pin fixation of bones and joints. It discusses the new or improved operations which have been developed for diseases of the heart and lungs, for affections of the pancreas, for cancer and congenital fistula of the esophagus, for complete gastrectomy and for the transthoracic approach for operations upon the stomach. It shows that further evidence as to the upward lymphatic spread and diffusion of rectal cancer has stimulated the development of operations in which colostomy is eliminated and a functional anus retained. Clear cut diagnostic symptoms are given to replace the hazy and indefinite symptomatology of cancer of the stomach, hiatal hernia and displaced nucleus pulposus.

Besides the rarer surgical conditions, often omitted in surgical texts, the common surgical conditions, operations, technics, the special instruments, drugs, chemicals, sutures, drains and dressings used by the surgeon are all described in relation to their best application. The book supplies the student and practitioner with a working knowledge of surgical conditions.

Physical Treatment of Anterior Poliomyelitis. *By Diana B. Kidd. T.M.M.G., T.M.E.T., Member of the Teaching Staff, Kings College Hospital, London. Cloth. Price, 6 s. net. Pp. 133, with 21 illustrations. London: Faber and Faber, Ltd., 1943.*

The first chapters of this book are concerned with the pathology of anterior poliomyelitis and the general principles of its treatment, and serve as an introduction to the discussion of muscular reeducation. Various means of muscle training, both with and without apparatus, are reviewed in detail.

Treatment by using suspension slings is emphasized, being a less well known method and one which the author believes should be more widely used. Apparatus for the slings is inexpensive; directions for constructing it are complete and well illustrated. This method provides support by the slings and removal of frictional resistance. The operator has both hands free to assist or resist movement as desired. Mobility of the joints may be maintained, and reeducation of the sense of movement is possible. Because the treatment can be carried out with the least possible disturbance of the patient, it can be begun at an early date. The author states: "By means of suspension slings any muscle group in the body may be reeducated with an accuracy of muscle action which it would be difficult to surpass. It is important, however, to remember that such individual reeducation should form only part of the treatment. Coordination exercises and training in the normal use of the body must be given."

Technic for exercising the body in different positions is explained in detail. Assisted and resisted movement, and coordination exercises, are outlined. The principles of postural training and walking are presented as an integral part of the treatment. One chapter is devoted to the discussion of other nervous conditions and their physical treatment.

The physical therapist will find this an interesting and instructive book.

Physical Demands of Daily Life. *By George D. Deaver, M.D., and Mary Eleanor Brown, M.A., Physical Therapist. Paper. Price, 10c. Pp. 36, with 7 illustrations. New York: Institute for Crippled and Disabled, 1945.*

This pamphlet gives a rating scale devised to judge the ability of the patient to perform the activities involved in locomotion and traveling, self care and the use of the hands. This physical appraisal is in turn but a part of a broader effort to gain a complete understanding of the individual in terms of his total situation and need.

This pamphlet can be recommended to physical therapists as a guide in testing a handicapped individual's capacity for activity.

The 1944 Year Book of Physical Medicine. *Edited by Richard Kovacs, M.D., Professor of Physical Therapy, New York Polyclinic Medical School and Hospital; Attending Physical Therapist, Manhattan State, Columbus and West Side Hospitals; Visiting Physical Therapist, Department of Correction, Hospitals of New York City and Harlem Valley State Hospital, Wingdale; Consulting Physical Therapist, New York Infirmary for Women and Children, Mary Immaculate Hospital, Jamaica, N. Y.; St. Charles Hospital, Port Jefferson, L. I., and Hackensack Hospital, Hackensack, N. J. Cloth. Price, $3. Pp. 416, with illustrations. Chicago: The Year Book Publishers, 1944.*

This is another of those popular books abstracting the most important articles on physical medicine that have appeared in the last year. Some of these abstracts are of interest to physical therapists, as exercises for backache, bronchial asthma, subacromial bursitis, cartilage injuries of knee, flatfoot, hand injuries, leg fractures, postural strain, rheumatoid arthritis, shoulder injuries and heart disease. There also are abstracts on the making of apparatus such as a simply constructed cabinet for fever therapy, apparatus for Buerger's exercises, a goniometer for measurement of pronation and supination, a wrist exerciser, an ankle exerciser, a cone for exercises of hand, wrist and fingers and an apparatus for redeveloping muscles and mobilizing joints below the knee. These and other abstracts make this Year Book of great interest to physical therapists.

Structure and Function as Seen in the Foot. *By Frederic Wood Jones, D.Sc., F.R.S., F.R.C.S., Professor of Anatomy, University of Manchester, England. Cloth. Price, $7.50. Pp. 329, with 150 illustrations. Baltimore: Williams & Wilkins Company, 1944.*

The author is very much impressed with the importance of the foot as an organ of very special development characteristic of man. He encountered the difficulty of terminology and makes an attempt to clarify it without adding more new terms. He is eminently fitted to discuss the phylogeny of the foot, and his chapter on this subject is sound. The chapter on ontogeny is a comprehensive discourse on the embryological development of the foot. The author takes exception to the concept that the ideal foot should have a first metatarsal bone longer than the second. He discusses the digital formula and shows that the normal foot most frequently has a longer second metatarsal bone, and then he shows the variations that occur and with what frequency. He recognizes the tortuous course of the tendo Achillis. Throughout there is always a connection between the anatomy and the function. He shows how the anatomical structures adapt themselves, according to Wolff's law, to the function of standing and walking in the upright position. The longitudinal arch is described, the medial longitudinal as more plastic while the lateral is more rigid and stronger. The relationship of the heads of the metatarsal bones is described, showing how they form a transverse arch. The importance of the muscles and their attachments in holding the normal relationship of the bones to each other to maintain the arches is clearly presented. His description of extra bones is complete, comprehensive and not too detailed, and he thus avoids confusion. The chapter on nerves and vessels is good. The illustrations are clear, but sketches are resorted to throughout rather than anatomical reproductions.

This is an excellent book on the anatomy of the foot. The author presents the anatomical structures in relation to their clinical importance. He emphasizes that treatment of common disabilities of the foot lies in reeducation of function rather than in reenforcement by mechanical contrivances or more drastic treatment by the refinements of surgical technic. He fortunately is free of "pet" ideas and theories. The foot is presented as a highly developed part of the body and as an example of the wonderful adjustment of structural form to the special functional demands.

The book will be of interest primarily to orthopedists, anatomists and physical therapists.

Arthritis and Allied Conditions. *By Bernard I. Comroe, A.B., M.D., F.A.C.P., Associate in Medicine, University of Pennsylvania; Senior Ward Physician and Chief of the Arthritis Clinic, Hospital of the University of Pennsylvania. Third edition. Cloth. Price, $12. Pp. 1359, with 329 illustrations. Philadelphia: Lea & Febiger, 1944.*

In this edition thirteen additional chapters and one-hundred new illustrations have been added. Nearly every page has been revised or rewritten. The new chapters cover such topics as penicillin, psychogenic factors in rheumatic disease, rheumatic manifestations of tropical diseases, recent advances and common mistakes in the diagnosis and treatment of rheumatic disorders, Dupuytren's contracture, the effects of climate on arthritis, the differential diagnosis of rheumatoid arthritis, a diagnostic digest of the average arthritic problem for the general practitioner and the employment of occupational therapy.

The chapter on massage has been enlarged and greatly improved by the addition of more than 20 photographs which portray the technics of the various forms of massage.

The sections on orthopedic care, roentgen diagnosis and therapy and physical therapy have been expanded.

The subjects of rheumatoid arthritis and degenerative joint disease have been discussed in detail including the symptoms, differential diagnosis, treatment, etiology and pathology. Chapters also are included on specific infectious forms of arthritis such as gonococcal, pneumococcal, tuberculous, syphilitic, and other specific forms of arthritis, as well as important details on rheumatic fever, spondylitis, fibrositis, gout, intermittent hydrarthritis, and traumatic arthritis. The etiology and treatment of painful shoulder and bursitis, painful feet and backache are discussed in detail.

One of the features of this edition as in the previous editions is the placing of summaries of each subject in box form so that they are easily available for those with limited time for reading.

This book can be recommended as a reference book on arthritis for physical therapists. It should be in the library of every general practitioner, for the diagnostic features and therapy are written so that he can personally diagnose and care for the great majority of his patients with arthritis and allied conditions.

The Pathology of Internal Diseases. *By William Boyd, M.D., LL.D., M.R.C.R., Ed., F.R.C.S., Lond., Dipl., Psych., F.R.C.S., Professor of Pathology and Bacteriology in the University of Toronto, Toronto; formerly Professor of Pathology in the University of Manitoba, Winnipeg, Canada. Fourth edition. Cloth. Price, $10 Pp. 857, illustrated with 366 engravings and 8 colored plates. Philadelphia: Lea & Febiger, 1944.*

This book is intended to be a companion to the writer's "Surgical Pathology." It is devoted to pathological matters but the relation of symptoms to lesions concludes the discussion of every subject of major importance. In some ways it is an illustrated textbook of internal medicine showing not the diagnosis or the cure but the mechanism of disease, its why and its wherefore.

In this edition the following new material has been added: demonstration of the collateral coronary circulation by injection, the relation of trauma to coronary thrombosis, the history of coronary infarction, Heberden's description of angina pectoris, coronary lesions in rheumatic fever, chronic constrictive pericarditis, disseminated lupus erythematosus, primary atypical pneumonia, Q fever, psittacosis, fuel oil pneumonia, localizing factors in abscess and tuberculosis of the lung, chronic disseminated tuberculosis, the microscopic interpretation of pulmonary emphysema, pulmonary interstitial emphysema, adenomatosis of the lung, hemangioma of the lung, blast injury, Meig's syndrome, dietary cirrhosis of the liver, infective hepatitis, cystic fibrosis of the pancreas, nephrotoxic nephritis, the renal lesions in subacute bacterial endocarditis, hypertensive toxemia of pregnancy, intercapillary glomerulofibrosis, nonglomerular uremia, crush nephritis, sulphonamide nephritis, the Waterhouse-Frederichsen syndrome, the pathogenesis of Graves' disease, the Rh factor in erythroblastosis fetalis, sarcoidosis, Arnold-Chiari malformation of the brain stem, equine encephalomyelitis and Theiler's disease.

Several sections have been rewritten, twenty-two new figures and four colored plates have been added.

This book can be recommended as an excellent reference book in pathology for physical therapists. It should be in the library of every physician.

The Experiments of Nature and Other Essays. *By Irvine McQuarrie, Ph.D., M.D., Department of Pediatrics, The Medical School, University of Minnesota, Minneapolis. Delivered at the University of Kansas School of Medicine, Lawrence, Kansas. Cloth. Price, $1. Pp. 115, with 16 illustrations. Lawrence, Kansas: University Extension Division, University of Kansas, 1944.*

These essays are Series XII of the Porter Lectures delivered at the University of Kansas Medical School. The first, "The Experiments of Nature" shows that there has developed an unfortunate tendency on the part of many clinicians, as well as laboratory investigators, to regard the animal laboratory as the sole source of original information worthy to be designated as "scientific." This essay calls attention to the importance of the clinic in providing opportunities for discovering basic principles of physiology and pathology which might never enter the purview of investigators dealing exclusively with normal experimental animals.

The second essay is on the diseases of the adrenal glands in children and gives a summary of our present knowledge of this subject.

The last lecture is an interesting one on the "Medical Conditions in Besieged China." For example, the author states: "Their sense of the practical and their realism are well illustrated by an amusing experience related by a pioneer medical missionary who established a small hospital and a medical school for training native physicians and nurses in the backward plateau region of western Szechwan province. . . . The war lord governor then in control of this region, out of gratitude for the valuable services rendered by the mission school and clinic to his people held a feast in honor of the foreign doctor. . . . The doctor expressed his wish for assistance in securing fresher or better preserved material (for teaching anatomy) stating that heretofore he had been forced to use unclaimed bodies which had usually reached an advanced state of putrefaction before they were received. . . . Several months later . . . his 'number-one' servant boy came in great excitement to inform him that soldiers, bearing a favor from their leader, awaited at the compound gate. . . . He was amazed to discover that his accommodating friend had sent him six terrified bandit prisoners leashed together and led by two soldiers in uniform. He attempted to explain to the soldiers that his casual request for fresh cadavers must have been misunderstood by their chief, but they politely assured him that there had been no misunderstanding on his part. The eminently practical war-lord had offered the doomed captives on foot with the idea that the anatomist could execute one at a time as his need for fresh dissecting material arose!"

Lippincott's Quick Reference Book for Medicine and Surgery. *(A Clinical, Diagnostic and Therapeutic Digest of General Medicine, Surgery and the Specialties, Compiled Systematically from Modern Literature.) By George E. Rehberger, A.B., M.D. Twelfth Edition. Cloth. Price, $15. Pp. 1460, with illustrations. Philadelphia: J. B. Lippincott Company, 1944.*

This book consists of eleven parts dealing with the whole field of practical general medicine, surgery and the specialties except psychiatry. Under each condition there is given the definition or description of the affection. Diagnostic laboratory tests are supplied where required. Next comes a full enumeration of the causes of the condition; then its prognosis or its expected duration and final outcome. Finally treatment is given as concisely, explicitly, and completely as possible (except, as a rule, for operative technic). This arrangement is followed so as to obviate the necessity of referring to other works for elucidations, technic, dosage of drugs, formulae, etc.

The author states that it is a compilation, culled from modern medical teaching and colored by the varied experience of one who has been an isolated country doctor, and feels that he knows the needs of the general practitioner who is confronted with disease in all its manifestations.

In this twelfth edition the sections on gynecology and genito-urinary diseases have been entirely rewritten and all other sections have been carefully revised, especially in the fields of chemotherapy, shock treatment, burns, deficiency diseases and nutrition. There are many excellent color plates.

This book can be highly recommended to the general practitioner as it keeps constantly in mind the needs of the practitioner, the necessities of whose situation demand that he should be well equipped to meet all emergencies. This new edition is completely up-to-date.

Essays in the History of Medicine Presented to Professor Arturo Castiglioni on the Occasion of His Seventieth Birthday, April 10, 1944. *Paper. Price, $3.50. Pp. 358, with illustrations. Baltimore: The Johns Hopkins Press, 1944.*

Arturo Castiglioni was formerly Professor of Medicine at the University of Padua 1922 to 1938 and was exiled from his country by Fascism. Sigerist, in his Epistola Dedicatoria, says: "The government that persecuted you has already collapsed. The Sawdust Caesar has already been punctured and nothing is left of him but an empty shell. The bandits that brought misery to your country and to the world are liquidating each other in true gangster fashion. But you are alive, respected and honored, a representative of the eternal Italy."

Professor Castiglioni was Research Associate and Lecturer in the History of Medicine at Yale University in 1939 and Professor from 1943. He worte "A History of Medicine" that was translated from the Italian and edited by E. B. Krumbhaar, and reviewed in these columns in 1941.

Of interest to physical therapists is one of the essays on "Medical Matters in Marco Polo's Description of the World" by Leonardo Olschi, formerly Professor at the University of Heidelberg, Germany, and at the University of Rome, Italy. The author, speaking of Marco Polo, states: "He has a marked interest in balneology, a very popular division of medicine during the Middle Ages—although—or perhaps—because it was not always appreciated by professional physicians. Owing to this, Marco Polo is the first and only author who ever mentioned what he called 'the best baths from natural springs that are anywhere to be found,' situated in the city of Erzinijan in the Armenian province of Erzerum. On the route from Hormuz to Kerman in Southern Persia he noticed many natural hot baths which 'have excellent virtues; they cure the itch and several other diseases.' Thus he was very impressed by the fact that over all the country of Cathay 'every one has a bath at least three times a week, and in winter if possible every day, whilst every nobleman and man of wealth has a private bath of his own use.' It is only the abundance of coal (those 'black stones existing in the beds of mountains') that made this national custom of China possible."

These essays are a Supplement to the Bulletin of the History of Medicine, written in six languages, and represent a tangible expression of the friends of Professor Arturo Castiglioni.

Freud's Contribution to Psychiatry. *By A. A. Brill, Ph.B., M.D. Cloth. Price, $2.75. Pp. 244. New York: W. W. Norton & Company, Inc., 1944.*

As the author points out this compact volume is by no means a resume of Freud's work. It is a "psychiatric autobiography" written in a personalized style which makes it all the more interesting to read. Since the author was identified very early with the psychoanalytic movement and was in rather close contact with Freud he is able to present his material authentically and logically.

The book very effectively carries the reader from the early period of Krapelenian psychiatry through the period of the hypnotists and finally emerges into the period of dynamic psychiatry. It is in this last phase that Freud's ideas on certain subjects are presented; subjects in which the author was personally interested. Some of the subjects included are: paranoia and its relation to homosexuality; polymorphous perversities in paranoid states; the struggle of psychic forces in the neuroses and mourning melancholia and compulsions. The latter part of the book is a discussion and support of Freud's interest in religion and his contention that "the archiac heritage of mankind includes not only dispositions but also ideational contents, unconscious memory traces of experiences of former generations."

This book is the material presented by Doctor Brill as the Salmon lecturer of 1943. It does a great service to psychoanalysis in trying to bring together in simple readable form some of the master's work. However, even though it is simplified it still requires intensive analytic training to fully comprehend it. The author rightfully points out where gaps in knowledge must be filled in.

A Textbook of Histology: The Functional Significance of Cells and Intercellular Substances. *By E. V. Cowdry, Professor of Anatomy, The School of Medicine, Washington University, and Director of Research, The Barnard Free Skin and Cancer Hospital, St. Louis, Mo. Third Edition. Cloth. Price, $7. Pp. 427, with 317 illustrations. Philadelphia: Lea & Febiger, 1944.*

This is a streamlined edition of this standard textbook. The fundamentals are revealed in their true proportions. It permits a closer focussing of attention on the correlation of form and function by lightly passing over the minutiae.

The method of presentation is unchanged. It centers about the blood vascular system as the principal integrator. Structure and function, being really indivisible, are described together in their natural fluid environments. The result is a dynamic picture of the integrated whole which must be repeatedly called to mind if it is to be made comprehensive and accurate.

The textbooks of physiology include a good deal of histology so the author interprets structure in terms of function. Some structural modifications in the pathologic states are mentioned because the author believes that by learning how Nature performs many significant adjustments in response to usual demands, we can better appreciate normal structure and function.

The book contains a lot of authoritative and up-to-date information and interpretation leading the student to visualize the reactivity of tissues and organs in terms of biochemistry, physiology and pathology. It is highly recommended to medical students as a textbook and as a reference book in histology for physical therapists.

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